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## LECTURES
ON
## COMPARATIVE ANATOMY
AND
## ANIMAL PHYSIOLOGY,

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BY

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### LECTURE I.
#### ON THE HISTORY AND PRESENT STATE OF THE SCIENCE.

COMPARATIVE Anatomy is that branch of physical science which treats of the structure of animals. It describes the forms of the several organs, their intimate composition, their internal mechanism, and their various connexions with each other in every class of animals. It traces the gradual development of the organs in the embryo, from their primitive through all their succeeding forms, and shows the relations which exist between these transient forms and the new conditions in which the animal is placed in each of the phases of its existence. It teaches us the uses of the several parts of animals, the functions they perform in their economy, the laws which regulate the co-existence of organs in the same machine, and those which determine the forms of individual organs in each class. It points out the relation which exists between the mechanism and the movements of animals, their structure and functions, and thus leads us to penetrate the mystery of their vital phenomena, their diversified living habits, and the remarkable instincts of particular species. It discovers to us unexpected analogies in the forms and structure of parts in animals remote from each other in the scale, and by extending those analogies it leads us to perceive a resemblance of structure in very different classes of animals, and a uniformity of system—a unity of plan—in the organization of the whole animal kingdom.

Comparative anatomy is a science of analysis and synthesis, and shows us the composition and the primitive or essential elements of all the organs of the body, by watching the order in which their parts are called successively into being, either in the embryo of the same animal, or in ascending through the great body of the animal kingdom. Presupposing a knowledge of the structure of the human body, it compares the organs of the inferior animals with those of man, and shows us that the transient forms of his organs are only repetitions of the permanent forms of the same parts in inferior classes,—that the same laws regulate the forms in both, and that although he possesses, upon the whole, the most complex and elaborate organization met with in nature, he is inferior to many of the lower animals in the degree of development of particular organs. It is only by this kind of comparison that we can acquire an accurate conception of the true character of human organization. And by more extended comparisons we determine the rank which the inferior tribes of animals occupy in the scale of beings. By determining the general laws which regulate the natural development of parts, we arrive at the theory of irregular developments, or monstrosities, in the animal kingdom, and find that those apparently anomalous formations are the result of laws as simple and uniform as those which regulate the healthy or normal structure. By taking an extensive survey of the organization of existing animals, we discover this remarkable truth, that the development of every organ of the human body can be traced through all its successive stages in the great body of the animal kingdom, and the form which an organ presents in each of the lower classes corresponds with its

condition at some period of the human embryo. But the researches of the comparative anatomist are not confined to the existing races of animals. In the remains of animals entombed in the ancient strata of the earth, he is enabled to trace phases of organic development on the surface of our planet, which have long preceded the existing forms, and have even been extinct anterior to the existence of our race, and of all the vertebrate tribes.

Comparative anatomy was so named by Vicq-d'Azyr, on account of the numerous comparisons which it institutes between the structures of different animals, and from its having been at first cultivated chiefly with the view of illustrating human structure, by comparing the organs of the inferior animals with those of the human body. It is also frequently called zootomy, from ζωον "an animal," and τεμνειν "to cut," a term which implies that the dissection of animals is the source from which the facts of the science are derived.

Like other sciences founded on direct observation, comparative anatomy consisted in its infancy of a few simple and unconnected facts, which, in its advancement, became gradually multiplied, extended, and generalized, and were ultimately reduced to a regular body of science. Although few branches of physical inquiry have advanced with more reluctant steps than that which investigates the internal mechanism of animals, and the laws which regulate their complicated vital phenomena, the origin of none can probably be traced back to a remoter antiquity.

Man, the most complicated in internal structure, and the most perfectly organized of material beings, was created after all the other animals of this earth. Surrounded with the means of supplying his natural wants, and impelled by his instincts and passions, he must have early commenced hostilities with the brute creation, to procure the means of his subsistence, to obtain their fleecy skins to shelter his nakedness from the inclemencies of the seasons, or to protect his life and property from their rapacious attacks. His natural repugnance to scenes of blood would thus be overcome by the habitual sight of the mangled carcases daily obtained from the chase, before he began to tame or domesticate useful animals, or to preserve flocks for his support.

Notwithstanding the diversity of external form and character presented by his daily victims, he could not fail to observe a remarkable sameness in their internal structure, and even to be struck with the resemblance of their internal organs to the corresponding parts which the numerous accidents of a savage life had often exposed to him in the human body. This was the more likely to arrest his attention with regard to the great viscera of the trunk, as the opening and dividing of animals, whether to prepare them as food, or to offer them as sacrifices, was often attended with superstitious ceremonies, and was confided only to those who had an influence over the minds of their fellow men, and whose duties as augurs required them to observe and to study the appearances of these parts.

The oldest historical records abound with details of the sacrifices of animals offered to the deities by the priests of the Israelites, the Egyptians, and the Greeks; and in most of the civilized nations of antiquity, mysterious signs and auguries were taken from the inspection of the viscera of slaughtered animals. Moses describes the mode of conducting these sacrifices among the Israelites more than thirty centuries ago, when young bullocks, rams, sheep, calves, kids, lambs, goats, young pigeons, and turtle doves, were offered to the Deity as atonement for the sins of his people. Homer makes constant allusion to the sacrifices of domestic animals and auguries taken from the appearance of the internal organs, by the Grecian priests at the Trojan war, eleven hundred years before Christ. The priests of Egypt at as remote a period, enjoyed extensive opportunities of examining the internal parts of quadrupeds, birds, and reptiles, worshipped as deities in that country, and preserved after death embalmed in the pyramids. Many of the carcases of these animals are still brought to Europe from these ancient monuments, in a state of high preservation. Geoffroy Saint-Hilaire, when with the French army, brought from the tombs of Upper and Lower Egypt, mummies of cats, dogs, monkeys, the head of a bull, birds of prey, ibises, and crocodiles. Interesting descriptions of the sacrifices of animals among the Egyptians, and of the whole process of embalming, are given in the writings of Herodotus, the most ancient of profane historians, and in those of Diodorus Siculus.

Although Moses, in his laws to the Israelites, and Homer throughout his poems, have shown that they possessed an intimate acquaintance with the internal parts, and the living economy of many of the lower animals, the zootomical knowledge collected by the priests during their rites and ceremonies, consisted only of observations on the natural and morbid appearances of the larger viscera, particularly of the heart and liver, from which their signs and omens of future

events were chiefly taken, and these accumulated observations, which formed a considerable portion of their art of divination, were not applied by them to the advancement of any rational pursuit.

That singular and acute philosopher, DEMOCRITUS, about 400 years before Christ, during his retirement in the unhealthy forests of Abdera, devoted himself to the examination of the internal structure of the lower animals, with a scientific object in view. His contemporary, HIPPOCRATES, who visited him in his solitude, found him dissecting under a tree, surrounded with the carcases of the quadrupeds he had already examined, and the father of physic is said to have profited by the anatomical observations of this philosopher. In his letter to HIPPOCRATES on the nature of madness, this acute observer first maintained the brain to be the true seat of the operations of the mind. HIPPOCRATES, who afterwards directed much of his leisure to the study of anatomy, considered this organ as an inert refrigeratory of water and earth, destined to condense the vapours which rose from the lower cavities of the body.

PYTHAGORAS, ALCMEON, and EMPEDOCLES, are also said to have directed their attention to the structure of animals.

The cultivation of this study is attended with circumstances very different from those of the abstract sciences, and which have mainly contributed to retard its progress. It depends for its advancement much less on the efforts of genius, or learning, or profound meditation, than on the constant employment of the eyes and the scalpel, and the abundant supply of animals from all parts of the globe, which are often inconsistent with the private means of scientific men. Without the powerful and well-directed patronage of ALEXANDER the GREAT, the varied and extensive learning, and the comprehensive genius of ARISTOTLE, would have little availed him in accumulating that great body of zootomical knowledge which he has left to the admiration of succeeding ages. Thousands of men were employed throughout Greece and Asia to collect all kinds of animals for ARISTOTLE, and eighty talents of gold were placed at his disposal for the advancement of this branch of science. The zoological treasures thus collected from all parts of the world were carefully examined, dissected, and described; and though the physiological views of ARISTOTLE occasionally partake of the errors of those times, he everywhere displays a minute and extensive acquaintance with the structure and habits of animals, an extent of knowledge in this department which, notwithstanding the advantages he is known to have possessed, is quite extraordinary for the period at which he wrote. Some of ARISTOTLE's descriptions of quadrupeds were considered by CUVIER as superior to those of BUFFON, and in the lowest tribes of animals we shall see that his details are sometimes more minute and accurate even than those of CUVIER himself.

After the time of ARISTOTLE much attention was devoted to this subject by medical men, from a laudable desire to become better acquainted with the true nature of disease, and from the difficulty of obtaining human bodies for that purpose in those times of ignorance and superstition. DIOCLES, HEROPHILUS, ERASISTRATUS, ÆLIAN, and GALEN, directed their attention to this branch of anatomy. The writings of Ælian in particular contain much information on all the classes of the animal kingdom; and it is well known that almost the whole of the anatomical knowledge which GALEN applied to the human body, was derived from the dissection of the lower animals. This, in particular, has been detected by the numerous errors into which he has been led by applying the osteology of quadrupeds to the human skeleton.

The natural history of the Elder PLINY, like the voluminous writings of ARISTOTLE, may be regarded as an encyclopædia of all the knowledge of the time when it was written, and by the few facts in comparative anatomy which it has recorded, in addition to those of the Greek philosopher; it marks the slow progress of this science during a period of four hundred years, which intervened between them.

During the long darkness of the middle ages the scientific investigation of the animal frame appears to have retrograded rather than advanced. So late as the beginning of the sixteenth century, the writings of RONDELETIUS, COLUMBUS, and ALDROVANDUS, may be said to have recreated this study, and by pointing out its practical applications they gave a proper direction to the pursuit. The works of FABRICIUS contain many zootomical details; and, in his public instructions, the illustrations which he drew from comparative anatomy directed the views of his pupil HARVEY. It was by experiments and dissections of the lower animals that HARVEY ascertained the true course of the blood through the system, and thus established a discovery which has changed the face of medical science. The singular discovery of GALVANI, which has had as marvellous an influence on the science of chemistry, and has led to the establishment of the new science of galvanism, was

made by observing the contractions of the muscular fibres while that physician was dissecting a frog.

The discovery of the lacteal vessels, by ASELLIUS of Pavia in 1622, was made by examining the mesentery of a live dog.

The thoracic duct was first detected by EUSTACHIUS in examining the viscera of a horse, and the true function of this canal was afterwards ascertained by PECQUET, by observations made on other quadrupeds as early as 1651.

ASELLIUS's discovery of the lacteals in quadrupeds was known for twelve years before VESLINGIUS detected them in the human body.

That minute and indefatigable zootomist, SWAMMERDAM, whose splendid "Biblia Naturæ" has thrown so much light on the organization of the lowest tribes of animals, was the first who observed the valves in the absorbent vessels in 1664. The absorbent vessels themselves had been discovered about ten years before both in England and Sweden.

The importance of the discoveries thus due to comparative anatomy in illustrating the anatomy and physiology of the human body, and the numerous improvements they introduced into medical science, gave a new impulse to the study in most of the schools of Europe.

The zootomical details of SEVERINUS and BLASIUS, the minute and accurate investigations of REDI, MALPIGHI, and SWAMMERDAM, the valuable contributions of PERRAULT and DUVERNEY, and the useful labours of our countrymen TYSON, NEEDHAM, GREW, and COLLINS, considerably extended the boundaries of the science about the beginning of the seventeenth century, and the many striking instances of design and intelligence, which they pointed out in the economy of the inferior animals, excited a more lively interest in these pursuits.

The numerous and interesting inquiries of REAUMUR, and the writings of DUVERNOY, CALDESI, VALENTINI, MEYER, and STELLER, laid open many new and curious paths of investigation. The voluminous writings of HALLER showed the utility of this study in every department of human anatomy and physiology. The beautiful works of ROESEL and TREMBLY and ELLIS, excited a lively interest among the physiologists and naturalists of Europe, by the singular and unexpected results of their investigations into the structure of the lowest and most neglected tribes of animals.

From the rapid progress and the subdivision of the other physical sciences, and from the vast extent of the animal kingdom, the study of zootomy began now to be separated from that of the human body, and its progress and history to become distinct from those of human anatomy, with which they had been hitherto identified.

The precision introduced into the study of the animal kingdom by the philosophical arrangements of LINNÆUS, the taste created for the study by the eloquence and genius and labours of BUFFON, the numerous and elaborate descriptions of DAUBENTON, CAMPER, PALLAS, and VICQ-D'AZYR, the curious zootomical discoveries of LYONNET, GOEZE, DE GEER, MULLER, SPALLANZANI, and FONTANA; the many useful contributions of SCARPA, GOUAN, LESKE, BLOCH, CAMPARETTI, STENO, KIELMEYER, PETIT, FERREIN, BARTHEZ, HEDWIG, RAFN, BLAKE, TENON, LORDAT, ROSENMULLER, GEOFFROY, MERREM, and the elder MECKEL, and the useful labours of our countrymen DOUGLASS, HEWSON, MONRO primus and secundus, and the two HUNTERS, not only enlarged the boundaries of the science in all its departments, and raised its importance in the scale of knowledge, by the numerous useful applications of its principles which they pointed out, and by the luminous views they unfolded regarding the general laws of animal organization, but succeeded also in giving an impulse to the study in many of the first universities of Europe.

Since the publication of the first elementary treatise on comparative anatomy by the venerable BLUMENBACH, the father of this science in Germany, and still its most zealous patron, the study has been ardently pursued by numerous distinguished German anatomists, and is cultivated with zeal and advantage in many of the universities of that country. The distinguished talents and varied learning of the late Professor RUDOLPHI of Berlin, the luminous views of HUMBOLDT, OKEN, TIEDEMANN, TREVIRANUS, and Professor MECKEL of Halle in this department, the useful labours of Professor CARUS of Dresden, GURLT, JEUDE, NEERGAARD, PANDER, D'ALTON, ALBERS, GALL, FISHER, ROSENTHAL, NITZSCH, BREMSER, TEMMINCK, Professor FOHMAN, LICHTENSTEIN, SCHWEIGGER of Konigsberg, and BOJANUS of Poland, and the numerous contributions of REIL, VOIGT, BAER, OPPEL, RATHKE, FRORIEP, WIEDEMANN, WEBER, SPIX, GADE, MORREN, WAGLER, OLFERS, WENZEL, FUNKE, Dr. MULLER, Professor EHRENBERG, the distinguished traveller and companion of HUMBOLDT, and many others, have continued to preserve for Germany the high rank which it has so long held in the history of this department of science. It is not, however,

alone by lectures and publications that Germany has advanced the interests of comparative anatomy. The splendid museum of Berlin, formerly under the direction of RUDOLPHI, contains a vast and beautiful series of zootomical preparations, the rich collections of Professor MECKEL are constantly increasing in extent by the indefatigable zeal of that profound anatomist, and the zootomical collections of Leyden, Bonn, Frankfort, Halle, Vienna, Dresden, Goettingen, and other parts of Germany, will extend and perpetuate an interest in the study, even beyond the exertions of its present numerous cultivators. The annual meetings of the German naturalists in different parts of the empire, and the numerous societies devoted to the advancement of these pursuits, promote the rapid diffusion of scientific discoveries, excite a generous emulation, and give a due direction to that zeal for which they are so eminently distinguished.

The poverty of the Italian states prevents them from giving that public support to the more expensive branches of physical science, which is so advantageously and judiciously bestowed by the more wealthy countries of Europe. Hence, notwithstanding the number of distinguished anatomists who have flourished in Italy, the great medical schools of Pavia, Padua, Pisa, and Bologna, present no means of studying this department of anatomy; and in the vast museum of wax anatomical preparations, the Gabinetto Physico at Florence, there are very few specimens illustrative of comparative anatomy. Italy, however, the country of PLINY, of ALDROVANDUS, of REDI, of FABRICIUS, MORGAGNI, SPALLANZANI, FONTANA, MASCAGNI, and SCARPA, has not remained indifferent to the progress of this science in other parts of Europe, but has laboured with singular success in many of its most obscure departments. We shall have frequent occasion to speak of the researches of CAVOLINI on the animals of the Bay of Naples. They present the most singular discoveries which have yet been made in this department of science, and though published by that profound and accurate observer nearly fifty years ago, they are only now beginning to be known to Europe. The folio anatomical works of POLI, on the Anatomy of the Testaceous Mollusca of the Two Sicilies, published at Parma, have never been surpassed for minuteness of detail and splendour of execution. The interesting and beautiful quartos of DELLE CHIAJE, on the Anatomy of the Invertebrate Animals of the Kingdom of Naples, the recent researches and interesting discoveries of RUSCONI on the structure and development of the salamander, the proteus, and other reptiles; the valuable labours of RISSO on the animals of the Mediterranean, the researches of the late ROLANDO on the great centres of the nervous system in the higher classes of animals, the zootomical investigations of MORESCHI of Milan, LIPPI, CARENA, GIORNA, and MALACARNE, the laborious researches of BROCCHI and CATULLO on the fossil animals of Italy, and the systematic works on comparative anatomy by Professor JACOPI of Pavia, and UCCELLI of Florence, have continued to support the long-established reputation of the Italian schools; and not a little of that zeal for zootomical pursuits, which of late years has been so generally manifested in that country, and is so advantageous to the science, is due to the public instructions, and to the unwearied, though unsupported, exertions of the late Dr. METAXA, my learned friend and preceptor, who was appointed professor of comparative anatomy in the University of La Sapienza at Rome, in 1813, by Baron CUVIER.

All the descriptive branches of physical science require for their successful study a constant appeal to the objects described, and no department appears more dependent on such illustration than comparative anatomy. Common observation makes us all familiar with the general outward forms of animals, and a short description may convey to us a pretty accurate idea of the form of one we have never seen. But their complicated machinery lies concealed from our view, it requires patience and skill to bring it into sight, and no distinct idea can be conveyed by mere description to the inexperienced, of that complex arrangement of parts, and those minute differences of structure, on which the peculiar habits of the species often depend. A constant reference to the objects themselves is the more necessary in comparative anatomy, from the extent and variety of the animal kingdom, and the rarity of many of the objects it comprehends.

In the possession of these means of illustrating every department of this extensive study, no country in Europe can compete with France. The museums of comparative anatomy and zoology in the Garden of Plants at Paris, have been constantly augmenting for more than a century, and have long surpassed in extent and magnificence everything of the kind in existence. When BUFFON was appointed director of the Garden of Plants in 1739, there were two rooms containing zoological specimens already open to public inspection, and one room containing

skeletons, which was kept private. The unremitting exertions of BUFFON, and his influence with the King of France, soon greatly extended the zoological collection. The quadrupeds and birds, so eloquently described by BUFFON, and the fishes described by LACEPEDE, were preserved in that cabinet, but their arrangement was in accordance with the well-known contempt of BUFFON for scientific classification.

DAUBENTON, the pupil of WINSLOW and DUVERNEY, was appointed by BUFFON, in 1745, demonstrator of anatomy, and occupied himself in making skeletons of all the animals he could procure, and in dissecting and describing their soft parts. During the directorship of BUFFON, the Academy of Sciences purchased the anatomical collection of HUNAUD, who had been formerly demonstrator, and presented it to the Garden of Plants, where it was joined to the collection already formed by DUVERNEY, and augmented by DAUBENTON. The elaborate zootomical descriptions and plates of DAUBENTON, taken from the specimens of the Cabinet du Roi, and published along with the works of BUFFON, formed the most valuable contribution to comparative anatomy which had hitherto appeared, and presented the subjects in their most intelligible and attractive forms.

About the middle of the last century, VICQ-D'AZYR, who had been appointed by PETIT to assist him in the course of human anatomy in the Garden of Plants, eminently distinguished himself by the numerous striking illustrations he drew from comparative anatomy, and by his profound and original views. While BILLARDERIE, who succeeded BUFFON, was director of the Garden, LEBRUN, one of the ministers of the King of France, introduced a professorship of zoology.

On the breaking out of the revolution in 1792, when BILLARDERIE made his escape from France, the museum of natural history, formerly the king's garden, underwent a new organization, and a distinct professorship of the anatomy of animals was introduced, which was given to the venerable MERTRUD, so justly eulogized by CUVIER for his zeal in that pursuit. SAINT PIERRE, who had just been appointed to the directorship of the garden, induced the government, which had always seconded the efforts of the directors, to purchase for that rising establishment the menagerie of Versailles, and thus begun that collection of living animals, which has so long excited the interest and admiration of Europe. The collections of the garden were greatly increased in 1795 by the arrival of the zoological museum and menagerie of the Stadtholder, which were pillaged by the French on the taking of Holland. The great accumulation of materials rendered it necessary to subdivide the department which embraced the animal kingdom, and LACEPEDE was appointed to teach the zoology of vertebrate animals, a chair now so ably filled by his illustrious successor GEOFFROY SAINT-HILAIRE. LAMARCK was at the same time appointed to the chair of the zoology of invertebrate animals, an appointment which he held till his death in 1830, at the advanced age of 86 years. Two assistant zoologists, DESMOULINS and DUFRESNE, were also appointed at that early period (1793) to complete the zoological department; and the late celebrated LATEILLE was made assistant-naturalist in the following year.

MERTRUD, who had dissected animals for many years along with DAUBENTON, was already too much advanced in years at the time of his appointment to the chair of comparative anatomy, to undertake the active duties of that extensive department, and by the advice of his colleagues he appointed CUVIER to lecture for him in 1795. CUVIER had already made himself favourably known to the naturalists of Paris, by his interesting papers on the anatomy of the mollusca, and by his popular lectures on natural history, delivered in the central school of the Pantheon. The appointment of CUVIER to this chair in the Garden of Plants, formed the commencement of a new and a brilliant era in the history not only of comparative anatomy, but of the study of nature; for since the period of Aristotle, no one had ever combined with the study of these departments, more distinguished talents, more varied and extensive knowledge, or more indefatigable zeal in the pursuit, and none has ever succeeded in effecting more important revolutions in physical science.

On the death of MERTRUD in 1802, CUVIER was confirmed as his successor in the chair of comparative anatomy, and now directed his whole energies to the extension of the zootomical museum as the only means of rendering the instructions in this department of solid and permanent utility. In the same year CUVIER and his pupils dissected the male elephant from the Stadtholder collection, which died at Paris. They dissected another male elephant in 1804, and a female a few years after. By the unremitting exertions of CUVIER and his assistants and pupils in dissecting and preparing the animals which died in the vast menagerie, the cabinet of comparative anatomy in 1806 was already in such a state of completeness as

to extent of material and scientific arrangement, as to be opened to public inspection, and it has continued open to the present time.

The direction of the menagerie was placed under the care of FREDERICK CUVIER in 1805, and from the facilities he thus enjoyed, he greatly aided the researches of his brother by the numerous additions he made to the osteological part of the cabinet, and by his own profound inquiries into the structure and forms of the teeth of quadrupeds. The work of FREDERICK CUVIER on the teeth, considered as zoological characters, has proved of great practical utility in the study both of recent and fossil quadrupeds.

The eloquence, the learning, and the genius of CUVIER, the uncommon popularity of his lectures, the rapid succession and importance of his discoveries, his indefatigable spirit of research, the originality and grandeur of his general views, and the variety and extent of his means of illustration, not only rendered the subject a favourite study in Paris, but quickly extended his fame through Europe. The multiplicity of his avocations prevented him from undertaking thus early a systematic work on the science; but manuscript copies of his lectures taken by pupils were circulated in Paris, and even quoted in publications. In 1800 M. DUMERIL, who was at the head of the anatomical department of the School of Medicine at Paris, and who had taken copious notes at several courses of CUVIER's lectures, commenced the publication of these lectures with the consent and assistance of CUVIER. Two volumes of the "Lecons d'Anatomie Comparée" were thus published by DUMERIL, when his important duties at the School of Medicine, and the new investigations of CUVIER into the fossil animals of the Paris Bason, interrupted the publication of the work. At length in 1805, Dr. DUVERNOY, a distinguished pupil and relative of M. CUVIER, and a zealous anatomist, was intrusted with the completion of that work which has stood unrivalled for its extent, originality, elegance, and accuracy, for nearly thirty years, notwithstanding the continued and rapid advancement of the science in every department during that long period.

So early as 1793, GEOFFROY SAINT-HILAIRE commenced his career in the garden of plants as Professor of the Natural History of Vertebrate Animals; the duties of which he has continued to fulfil with unabated zeal, and with immense advantage to that important part of the science, for a period of forty years. Labouring on a limited portion of the animal kingdom, he has surpassed all his predecessors and contemporaries, by his profound, philosophical, and original views of the anatomy of the higher animals, and by the ingenuity and boldness of his speculations in regard to the development, and the analogies of organs and the general laws of the animal economy. He has greatly extended our acquaintance with the species of vetebrate animals, and all his zoological descriptions are marked by a precision and accuracy and philosophical spirit, which give a stability and dignity to one of the most popular and attractive of the physical sciences.

The labours of LAMARCK on the invertebrate animals, continued for more than thirty years, have proved not less eminently beneficial to that obscure and difficult part of the science. He has carefully examined every portion of that immense division of the animal kingdom, and entirely reformed that part of zoology. In his voluminous writings he has entered largely into the organization of all the classes, and fully described the characters, the history, and the synonymes of the species. His general views are distinguished by an extent and minuteness of observation, and originality and boldness of conception, which have thrown a new light over this intricate part of nature, although the novelty and singularity of some of his results have retarded their general adoption.

The liberal and well-directed encouragement of the French government to one of the most expensive departments of the studies of nature, and the great subdivision of labour among its cultivators in France, enabled them to extend rapidly the boundaries of the science in every direction; and notwithstanding peculiar difficulties from their limited commercial relations, and from the long-continued interruptions to their navigation by their contests with nations commanding the sea, it is to them we owe almost every important improvement in comparative anatomy, and we are indebted to them for almost all our acquaintance with the actual and the past state of the zoology of the globe.

The vast zoological museum of Paris, which has been open to public inspection for a hundred years, and the immense collection of zootomical preparations which have been constantly employed in teaching the structure of animals, by a succession of zealous and profound anatomists, for nearly forty years, have not only spread a taste for these pursuits in France, and familiarised that country with their profoundest arcana as a branch of general education, but they afford a means of comparison, a powerful instrument of investigation to facilitate the progress of

discovery, enjoyed by no other country, and which has mainly contributed to their great superiority in this department over the other nations of Europe. Almost every school in France has produced its labourers in this great field of inquiry. The labours of CUVIER, which continued unabated over a period of nearly forty years, fill more than thirty volumes, and embrace every part of the study of animated nature. His investigations into the structure of the extinct races of quadrupeds, which occupy seven quarto volumes, have altogether reformed the study of fossil zoology, and afford the most splendid illustration which has yet appeared of the utility of comparative anatomy, as applied to the investigations of the geologist. The public lectures and the numerous writings of M. BLAINVILLE on comparative anatomy have been highly beneficial to the science, and the energies of his ever active mind have been directed to almost every part of the study, from the mammalia to the infusoria. His system of comparative anatomy which, unfortunately for the science, is still uncompleted, displays an extensive and minute acquaintance with the organization of the animal kingdom, and his materials are disposed in a luminous and philosophic arrangement. Fossil ichthyology is greatly indebted to him for his valuable labours on the Ichthyolites of Monte Bolca, preserved in the Paris Museum. He has thrown a new light on the structure and economy of molluscous animals, both recent and fossil, and on the singular class of entozoa. And more recently his extensive labours on the class of zoophytes have added many improvements in that department. He is now (1833) appointed successor to Baron CUVIER, in the chair of Comp. Anat. in the Garden of Plants. The immense researches of DE SERRES on the structure and development of the brain and nervous system in the classes of vertebrated animals are one of the most complete and valuable contributions which have for a long time been made to the science. They form a striking confirmation of the philosophical views of GEOFFROY on the unity of plan in the organization of animals, and a beautiful illustration of the utility of comparative anatomy as applied to the development of the organs of the human body.

Notwithstanding the numerous avocations of M. DUMERIL, as chief of the anatomical school of Paris, professor of zoology, and keeper of the museum of natural history, his numerous detached memoirs and his separate works have illustrated many obscure parts of the structure of animals, particularly of fishes and insects. The curious and complicated structure of insects has been greatly illustrated by the profound researches of the unfortunate SAVIGNY, by the long-continued labours of the late LATREILLE, by the recent splendid publication of STRAUS-DURCKHEIM, and by the zealous investigations of AUDOUIN, EDWARDS, and other zootomists of the French school. The structure of almost every class of animals has been the subject of separate and minute examination among the zootomists of France. The experimental inquiries of MAGENDIE, DUTROCHET, DESMOULINS, and many others, have lately added considerably to our knowledge of the structure and physiology of the lower animals. ADANSON, FERUSSAC, DESMAREST, CLOQUET, FLOURENS, DERHEIMS, GIRARD, SOMME, LAMOUROUX, RASPAIL, QUOY, GAIMARD, RANG, and many other of their countrymen, have added greatly to the reputation of the French school by their numerous discoveries and valuable labours in comparative anatomy. Indeed, the science is now so generally cultivated in France, and owes so much of its present advancement to the zeal and learning of French anatomists, that a great portion of our time in this place will be occupied in explaining and illustrating their views and discoveries.

Since the death of the venerable LAMARCK, about four years ago, at the advanced age of 86 years, M. DE BLAINVILLE and M. DE LATREILLE had been appointed professors in the garden of plants. M. DE BLAINVILLE was appointed to treat of the organization and history of the inarticulate classes of invertebrate animals, and M. LATREILLE those of the crustacea arachnoida and insects. M. CUVIER, during the summer (1831), substituted M. FLOURENS for himself in the course of the anatomy of the vertebrata. M. DE LATREILLE was aided in his first course of lectures (1831) by M. ANDOUIN. GEOFFROY ST.-HILAIRE has taken the assistance of his son ISIDORE G. ST.-HILAIRE. The recent appointment of M. DE BLAINVILLE to the chair of comparative anatomy in the Garden of Plants, vacant by the death of Baron CUVIER, will greatly contribute to preserve the celebrity of the French school of comparative anatomy, and give a strong impulse to those philosophical views which are so conspicuous in all his writings.

Although a century behind our continental neighbours in this department of science, no country in Europe ever possessed opportunities of cultivating and advancing the study of comparative anatomy equal to those so long enjoyed by Great Britain. Her powers command the ocean, her colonies are planted in every portion of the habitable globe, and the

skill and enterprise of her navigators and travellers have immensely extended the progress of geographical discovery in both hemispheres. The great savannas of the New World, and the frozen solitudes of North America, have been explored. The Arctic seas are annually navigated by fleets of British whalers. The vast solitudes of New Holland and Van Diemen's Land have been often traversed. British armies have traversed vast regions in Asia hitherto almost unknown. The scorching sands and savage deserts of Africa have often been deliberately explored, and the icy summits of the Cordilleras, and of the Himalaya mountains, 27,000 feet above the ocean, have proved no barriers to British enterprise. Our countrymen have circumnavigated the globe times without number, have sought dangers in every part of the Atlantic and Pacific oceans, and, surrounded with mountains and fields of ice moving like tempests, in every direction through the Arctic and Antarctic seas, they have boldly struggled to approach the Poles.

The mineral treasures of the most distant countries have been collected and examined, and the floras of most regions of the globe have been carefully investigated and described. The studies of geology and mineralogy have long formed a part of the plan of education in all our British universities, and numerous societies have long existed in all parts of the kingdom devoted to the advancement of these pursuits. Immense advantage to the country has accrued from the encouragement given to these branches of natural history, by the discovery of its numerous mineral riches, by the improvement of its agriculture, and by enabling it annually to distribute over the colonies men well qualified to extend these advantages. The active exertions and published transactions of these societies have also mainly contributed to the present advanced state of geology in Europe. The study of the vegetable kingdom, one of the most interesting and important branches of physical science, commenced its career as merely subservient to Materia Medica. It has gradually risen by its utility and attractions to the rank of an independent and favourite science in all our public seminaries of learning. It has proved of great practical utility in its numerous applications to agriculture, horticulture, medicine, domestic economy, and the arts; and it is justly regarded as an essential branch in the education of all medical men.

The animal kingdom is that to which man belongs, and all the beings which like him have motion and feeling. It comprehends a greater number of known distinct kind of beings than the other two kingdoms of nature taken together. More than 150,000 of its species are known, and all these are more nearly allied to man than are the beings of the other kingdoms. They contain not only the germs, but the successive stages of the development of human organization. Their study, however, in this country, may be considered as still in its infancy. Their nature and structure and properties have been less investigated. From the utility and applications of their study being less known, it has been hitherto only admitted into some of our public institutions as a branch of natural history, combined with one or both of the other more popular departments, themselves already too great for any human mind. From the study of the animal kingdom being thus almost deprived of public support, it has been neglected by those who had most opportunities of advancing its progress at home and in the colonies.

Attempts, however, have frequently been made in this country by private individuals, to raise the study of the animal kingdom to an equal rank with that of plants and minerals, by placing it on a scientific foundation, and by pointing out its practical applications. As a branch of anatomy, the study of the animal structure is intimately connected with that of the human body. Both Monro primus and secundus, at the conclusion of their courses of human anatomy in the University of Edinburgh, gave separate lectures on the anatomy of domestic animals, and Monro tertius, at the commencement of his career, followed this example of his illustrious ancestors. The earliest separate publication on comparative anatomy in this country, was an essay on that subject, published from manuscript notes taken at the lectures of Monro primus in 1744. The great work of Monro secundus, on the structure of fishes, published in 1785, has scarcely been equalled by anything which yet appeared in Britain in this department, and it owes much of its value to the many accurate plates with which it is illustrated, executed by the late distinguished anatomist Mr. Fyfe. The lectures of Mr. Fyfe on human anatomy, long delivered in the University of Edinburgh, were illustrated by numerous appeals to the structure of the lower animals, which he had made a particular subject of study, and his valuable Manual of Comparative Anatomy, published in 1813, was the first original work of the kind which had appeared in our language. A small part only of the lectures on comparative anatomy, by the late Dr. Harwood, has been published.

The indefatigable and successful labours of the two HUNTERS have elucidated many of the most intricate parts of the animal economy, and the highly interesting views of DARWIN laid open many new paths of curious inquiry in the application of comparative anatomy to human physiology. The varied and useful labours of the late distinguished Sir E. HOME, whose merits have naturally been least appreciated at home where they were least understood, continued for more than thirty years; they have been a principal means of preserving a taste for the study in this country, and have mainly contributed to extend the reputation of the British school of anatomy. The study has been also indebted to the labours of Professor MACARTNEY of Dublin, particularly for his observations on the structure of birds, and to the classical writings of Mr. LAWRENCE. The writings of Mr. ELLIS on zoophytes, and of Dr. LEACH on the articulated classes, are known to all Europe. Many interesting parts of this subject have also been illustrated by the labours of Dr. FLEMING, Dr. JOHNSON, Sir ANTHONY CARLISLE, Mr. CLIFT, Mr. YARRELL, Mr. M'LEAY, and others.

Besides the original work on comparative anatomy by Mr. FYFE, we possess, in our language, several elementary treatises, translated from the French and the German, as that of CUVIER, of CARUS, and of BLUMENBACH. BOSTOCK'S classical work on physiology abounds with interesting zootomical details. Dr. CRAIGIE, of Edinburgh, has recently published a separate treatise, which forms an article in the new edition of the Encyclopædia Britannica. The beautiful investigations of Sir CHARLES BELL on the nervous system have been chiefly conducted on the lower animals, and the interesting discoveries of Professor BUCKLAND, as developed in his Reliquiæ Deluvianæ, have been chiefly made by the application of comparative osteology to geological inquiries.

About twenty years ago, unsuccessful attempts were made by the patrons of the University of Edinburgh to introduce the late Dr. BARCLAY, who had accumulated for twenty years materials for teaching this science, as professor of comparative anatomy in that great medical school, and no attempts have since been made to supply this deficiency in the great northern university. In 1816 Dr. BARCLAY commenced public lectures on comparative anatomy at Edinburgh, which he continued in the summer season to the end of his valuable career. In 1824 (the last year of his lectures) he entrusted me with the part of his course which related to the anatomy of the invertebrated classes of animals. Dr. HART has given several courses of lectures on this subject in Dublin, Dr. REILLY in Bristol, and Dr. SCOULER in the Andersonian University of Glasgow. Annual courses of a few lectures on some select parts of comparative anatomy are given in the theatre of the Royal College of Surgeons of London to the members of that body, and these courses have successively exercised the talents of Mr. ABERNETHY, Sir E. HOME, Sir A. COOPER, Mr. LAWRENCE, Sir A. CARLISLE, Sir C. BELL, Mr. GREEN, and other eminent anatomists. Mr. THOMAS BELL has also given separate courses of lectures on comparative anatomy at Guy's Hospital, and Mr. SOUTH has given similar courses at St. Thomas's Hospital.

Numerous zootomical collections exist in this country, although they are scarcely ever employed in teaching the subject. The Barclayan Museum, now belonging to the Royal College of Surgeons of Edinburgh, is the richest in Scotland, and an Osteological Museum, containing many valuable skeletons, as of the dugong, the walrus, the fossil elk, the hippopotamus, the camel, has been recently formed in the University of Edinburgh by the exertions of Professor JAMESON. The Hunterian Museum of Glasgow contains many interesting zootomical preparations, and the collection of the Andersonian Institution is increasing by the labours of Dr. SCOULER. The zootomical part of the Museum of the Royal Institution of Liverpool has been greatly indebted to Professor TRAIL, of Edinburgh, and the splendid zoological Museum of Manchester, which fills seven apartments, contains several interesting specimens of comparative osteology, both recent and fossil. The zootomical part of the Museum of Dr. KIDD, at Oxford, has been much extended by the labours of Dr. OGLE, and several zootomical preparations are preserved in the Ashmolean Museum of the same city, which contains also the collection of fossil animals formed by Dr. BUCKLAND. The Museum of the College of Surgeons of Dublin, though deficient in osteological specimens, contains many dissected zootomical preparations of great beauty and value preserved in spirit. The collection of Dr. MACARTNEY in Trinity College, Dublin, is small but select, and that of the Park-street Medical School is extending by the labours of Dr. HART. The Museum of the Dublin Royal Society contains few zootomical preparations, but possesses the most complete skeleton of the great fossil elk which has been hitherto found.

In this metropolis there are many interesting private zootomical collections, be-

sides those attached to the hospitals and medical schools, as that of Mr. Langstaff, the Museum of M. De La Fons, that of Mr. Thomas Bell, and of Mr. Yarrell. The collection in this University has been formed expressly for teaching this department, and owes much to the skill and taste of the pupils. There exists also a rich collection of specimens in Guy's Hospital, which is rapidly extending by the judicious liberality of the directors of that vast establishment. That of St. Thomas's Hospital contains many beautiful preparations, made by Sir A. Cooper, and was formerly used in the lectures of Mr. South on Comparative Anatomy. A small, but very select collection, exists also in King's College, which is rapidly extending, and the Zoological Society of London has commenced the formation of a Museum of Comparative Anatomy and Zoology, which, with the extraordinary opportunities they enjoy, may be expected ultimately to equal any in Europe. The most extensive and useful collection of zootomical specimens in the British dominions is that preserved in the Museum of the College of Surgeons of London, a considerable nucleus of which was formed by the late Mr. John Hunter. This collection, however, like most of those I have mentioned, is, unfortunately for these studies in this country, very little employed in communicating instruction either in comparative anatomy or animal physiology.

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*HOTEL DIEU, PARIS.*

## CLINICAL LECTURES on SURGERY,

DELIVERED BY

## BARON DUPUYTREN,

*During the present Session,* 1833.

[Revised (before translation) by the Baron himself in the fasciculi of his "Leçons Orales de Clinique Chirurgicale," published periodically by G. Baillierre, Paris.]

### ON RESECTION OF THE LOWER JAW.

*Resection of the inferior Maxillary Bone.*

Before we speak, Gentlemen, of resection of the lower jaw-bone, it may not be amiss to lay before you some considerations on resection of bones in general. The cases in which we find ourselves compelled to cut away more or less of the body or articular extremity of a bone, while we preserve the limb, are those of an old sanies, which we cannot arrest; deep-seated necrosis, destroying a great part, or the whole thickness, of a bone; recent fractures and luxations, in which the fragments of the bone project, considerably, externally, and offer a great resistance to our efforts at reduction; spina ventosa, or osteo sarcoma affecting the centre or one extremity of a bone; artificial articulations, the consequence of ununited fractures; finally, comminuted fracture of the articular extremities, produced by gun-shots, or other projectiles, &c. The greater part of the lesions which I have just enumerated has been pointed out to you, in another lecture, as indicating amputation of the limb; it is true, in fact, that the choice which the surgeon has to make between amputation and resection, depends less on the nature of the disease or injury, than on the circumstances by which it is attended; the extent and severity of the local disorders, the manner in which the patient's constitution is affected, &c.; thus, caries affecting only one articular surface, or apophysis, will, ceteris paribus, require resection, whilst it would be useless if both articular surfaces were diseased, if the affection of the soft part was considerable, if the duration of the disease, or a long and copious suppuration, had affected the patient's constitution to any considerable extent. Resection will be sufficient for the reduction of a comminuted fracture, with protrusion of the fragments through the wound, and will usually be attended with success; but this method is ineffectual, and will not prevent the fatal accidents which follow fractures, when the tendons, muscles, nerves, or vessels, have been lacerated; in a word, in these cases, which I have in a former lecture described to you as imperiously requiring amputation, it is useless to compare the two operations in a greater number of circumstances; the duty of the surgeon chiefly lies in deciding whether the operation be applicable to the case before him, and in weighing carefully its chances of success as compared with amputation. As to the lower jaw, every operation in which a portion of this bone is removed by the application of the saw upon two different points, is, properly speaking, a resection; however, the name is more particularly applied by surgeons to an operation which has for its object the removal of the broken extremities in cases of fracture, in order to obtain their reunion, if the fracture be recent;—to excite an action necessary to the formation of callus, if the fracture be old. It is difficult to establish any method of resection of the lower jaw which will be applicable to the generality of cases requiring this operation; it must necessarily vary according to a great variety of circumstances,

***Injurious Opinion respecting the Resection of Bones in ununited Fractures.—Unique Case.***

Surgeons have long entertained an opinion which is very injurious, with regard to the resection of bones in cases of ununited fracture. They imagined it was absolutely necessary to cut out both fragments of the bone before a solid callus could be laid down; hence they avoided this operation in a great number of cases when this double resection was extremely difficult, if not impossible: thus, for example, they rarely had recourse to it in fractures of the femur, where frequently the fragments ride upon one another; the upper portion is the only one which can generally be got at with facility, while the inferior fragment, carried backwards and inwards, is too deep-seated to be exposed by an incision in this direction, while the presence of important vessels prevents any operation on the inner side of the limb. I am inclined to regard this opinion as altogether wrong, and hold that the resection of one fragment is sufficient to obtain the consolidation of both; at least two cases, in which I employed this practice, turned out successfully. The first was that of a female, who had for eighteen months an ununited fracture of the thigh; we exposed the superior fragment by an incision on the outer side of the limb, cut off the projecting portion of bone, reduced the fracture, and were fortunate enough to obtain consolidation in about two months. The subject of the second observation was a young Russian officer, who was struck in 1814 by a ball, which traversed the upper part of the neck and the face, passing from left to right obliquely upward. The entrance of the ball took place, on the left side, immediately below the base and angle of the jaw, close to the external carotid artery, and above the os hyoides; the ball passed out on the opposite side, in front of the insertion of the masseter muscle, passing through the bone, and breaking off the ramus from its body, which it comminuted: the wounded man lost a great deal of blood; at the commencement, deglutition and respiration were difficult; after the eschars were detached, an abundant suppuration set in; and, finally, after six months treatment, and the extraction of a great number of splinters, the external wounds closed, though the fracture was not consolidated. To judge by the quantity of splinters which came away, we would say nearly an inch of the bone had been destroyed. M. de R. followed the Russian army in its retreat from France, returned with it again in 1815, and it was not until 1818 that he received permission to come to Paris to seek some relief for his infirmity; at that time his state was as follows:—Of the two fragments, the posterior, formed by the remnant of the ramus, had the form of an elongated flat cone; it had executed a slight movement of rotation from without inwards, so that its upper edge, instead of regarding the molar teeth, was directed towards the tongue; at the same time it was strongly drawn forward from the anterior fragment, and lay in the substance of the cheek; it inclined obliquely from above downwards, supporting the wise tooth, the crown of which was excessively inclined also. In front of this tooth a sharp point, beneath which nothing could be felt, indicated that a part of the alveolar arch, nearly an inch in length, was continuous with the fragment, but that all beneath this edge, between it and the angle of the jaw, had been destroyed. The anterior fragment, formed by what remained of the jaw, was so considerably displaced, that its extremity, corresponding to the fractured point, was carried to the right, and beneath the point, of the other fragment. When the finger was brought along the base of the jaw as far as the cicatrix which had been formed on the right side of the face, the projection of the point of the anterior fragment was easily felt, and, beneath the prominence, the cavity resulting from the loss of substance. This point of the fragment, to judge from the interval which separated its extremity from the second molar tooth, was nearly an inch long, and was formed by that part of the bone of the jaw which had supported the two first great molar teeth; however, when the state of the parts was examined in the interior of the mouth, the overlopping of the bones was such, that the loss of substance was barely perceptible; the second small grinder of the anterior fragment nearly touched the wise tooth of the posterior one; the right half of the lower dental arch appeared considerably shorter than the left moiety, and hence arose such a want of correspondence between the two dental arches, that they preserved their natural relation only in a single point; the left lower incisor touched the middle incisor of the upper jaw, but when the left portion of the jaw was seized between the index-finger and thumb, and reduced to its natural position, an interval of about an inch was found between the wise tooth and the nearest one to it. You can conceive how articulation and mastication must have been impeded by such a state of things, both on account of the want of relation between the dental arches from the isolated movements of the fragments, and from the weakness of the mo-

tion where one fragment was elevated. To these inconveniences were added considerable deformity. As soon as the patient ceased to support his jaw with a cravat tied round the head, it fell down, the mouth remained open, and the saliva constantly flowed away; in addition to these, the chin deviated to the right side, so that the face seemed to describe a curve from left to right. M. de R. applied himself in the first instance to Baron PERCY, who decided upon cutting out the two fragments, and bringing the portions of bone together; for this object, and with the expectation of being able to act more freely on the posterior fragment, which its muscles kept tightly drawn up against the inferior dental arch, he thought fit to draw the last upper molar tooth; but this was scarcely accomplished, when the posterior fragment, deprived of its point of support, and yielding to the action of its muscles, ascended higher and higher, turning upon its condyle, until the tooth which it supported was lodged in the cavity caused by the extraction of the superior wise tooth. The point of the fragment fixed itself in the substance of the cheek, on a level with the upper dental arch, and remained immoveable in that position; the interval by which it was separated from the inferior fragment appeared considerably increased from below upward. This accident, which it was difficult to foresee, aggravated the melancholy state of the patient, when he was referred to me by Baron PERCY. The resection of the fragments seemed the first indication, but it was not sufficient to have it in our power to perform the operation without danger or difficulty; for it seemed certain that the difficulty of bringing the fragments into contact, would be increased by any loss of substance which they might suffer. Being, however, convinced by experience that it was sufficient to perform the resection of one fragment only, in order to ensure consolidation, I decided upon applying it to the posterior fragment, and contenting myself with scraping the anterior one. But, as we have before remarked, the posterior fragment was destroyed in the part corresponding with the base of the jaw, while, on the contrary, the anterior fragment was injured in the part corresponding with the alveolar ridge; hence, even if the two fragments could be brought into their natural positions, we could not expect to place them in contact.

This objection, however, had not much weight with me, for I had frequently seen, in cases of amputation of the jaw, an osseous production passing from one portion to the other, and so exactly filling up the space produced by the operation, that the patient did not even seem to have lost the prominence of the chin. But the principal difficulty of the case was this:—To cure the patient without deformity, it was necessary that the two fragments should be reduced to their natural position; that is, that the posterior fragment should be depressed to the left side, while the anterior should be elevated to a proper level with it. It remained to discover some means for fulfilling this last and most important indication. The first means we made use of, which were continued for a month, had no other effect than to depress by degrees the posterior fragment, and restore to it its mobility. M. LEMAIRE, a distinguished dentist, proposed other simple and ingenious means, as soon as the indications which we wished to fulfil were explained to him. They consisted, first, in replacing the upper wise tooth, which had been drawn out, by an ivory tooth; the object of this was to oppose the ascension of the posterior fragment. Secondly, to maintain the two fragments in a proper position, by means of platina wires attached on one side to the teeth fixed near the points of the fracture, and on the other, to the corresponding teeth of the superior dental arch. The adoption of these means being agreed on, the operation was performed on the 14th July, 1818, in the following manner:—The substance of the right cheek being seized between the thumb and index-finger of the right-hand, a bistoury was passed through the soft parts, from without inwards, and perpendicularly to the axis of the jaw, nearly three lines behind the projection formed by the posterior fragment; the blade was now lowered as far as the bone, and the soft parts covering it within and without were divided circularly, after which a portion of the bone, about three inches in length, was cut away with a straight fine saw; this portion was extracted on the inner side of the mouth. Our care was now directed to the anterior fragment, which we wished simply to denude; and this was done by passing a kind of gouge, used by engravers on wood, along the oblique edge of the fragment, from the point where it projected in the skin, as far as the second molar tooth. The whole of this edge was scraped, and a quantity of soft fibro-cartilage covering it removed. When things were so far advanced, and the anterior fragment was state of the parts; it immediately sunk brought to its proper position, the finger was introduced into the mouth to ascertain the into a kind of gutter, formed in front by the second small molar, behind by the wise tooth of the posterior fragment, and on the inner side by a ridge of the gum.

We now commenced our efforts to fix the fragments. M. Lemaire began by fixing, in the place of the last upper molar, a strong artificial molar, the crown of which was furnished with a cavity to receive the inferior wise tooth: the bit of ivory was fixed to the second last upper molar by a platinum wire; the object of it was to replace the tooth which had been drawn, and to keep the posterior fragment in position when depressed. This, as I mentioned before, was the first indication to accomplish after the resection. A loop of platinum wise was then thrown round the crown of the wise tooth of the posterior fragment, and the two ends of the wire, carried across over the tongue, were fixed round the crown of the lower small molar tooth on the left side; by this means the posterior fragment was brought inwards, and retained on the same line with the anterior one, being firmly fixed to it, and compelled to follow all its movements. Finally, in order to be more sure of accomplishing our object, it was necessary to fix the two fragments of the lower jaw (now united) to the upper jaw. This was to be done by passing another loop of wire round the smaller molar of the lower jaw on the right side, and attaching its extremities to the corresponding upper molar of the left jaw; but here the difficulties commenced. The loop continually slipped from the lower tooth; and when it was at length fixed, it gave way as soon as the wire was put on the stretch. This accident happened several times; the muscles attached to the anterior fragment, which had hitherto offered no resistance, now became irritated, and offered powerful opposition to any force tending to extend them. Ten full hours were spent in useless efforts of this kind, when I conceived the idea of passing a strong loop of doubled pack-thread round the last tooth of the anterior fragment; this gave us a better purchase on the jaw, which suddenly yielded with a sound, the signal of its reduction. The ends of the wire were now easily brought from the right lower molar, and fixed round the left upper one; another wire was passed from the right lower canine tooth to the left upper canine; thus the two jaws were brought together as closely as possible, i. e. the left lower middle incisor, instead of corresponding with the same tooth in the upper jaw, touched the right middle incisor, and so on for the other teeth; this was a slight deformity, but it was to be remembered that we had to combat an actual loss of substance, and that if the reduction had been perfectly just, we must have left an interval between the fragments, that would never have been filled up. A close bandage was applied round the chin, and the patient carried to bed extremely fatigued; he was enjoined to keep absolute silence. The fifth night was passed quietly enough, but bad symptoms were not long in making their appearance; the pressure of the false tooth on the upper gum, and of the wire on the tongue, gave rise to excessive pain; the patient expressed, in writing, his fear that his tongue was cut through; besides, the action of the fragments, in endeavouring to return to their old positions, was transferred through the wires to the upper jaw, and caused such excessive pain in this bone as to banish sleep altogether, and even force tears from the patient. On the eighth day some pus was mixed with the mucus discharged from the mouth; emollient injections were frequently thrown in, and were repeated to the end of the treatment, as they were very agreeable to the feelings of the patient. The dressings were not removed before the twenty-eighth day, when the small external wound was found nearly healed, and the suppuration, never abundant, was much diminished. On the thirty-second day the wound in the cheek was completely cicatrised; on the fortieth day pus ceased to be discharged, and all pain was gone; on the sixty-first day the bandage was removed to examine the state of the parts; when the finger was passed along the base of the jaw, we could feel a new production, firm, and extending, manifestly obliquely upwards, from one fragment to the other. This state of things was as satisfactory as possible, and we deferred further examination for two days. On the sixty-third day the two loops of wire, by which the dental arches had been fixed, were removed. We now attempted some slight movement of depression and elevation, and if we were at first grieved to see that the jaw inclined a little to the right in being depressed, we were not the less astounded to observe that the patient had recovered the power of bringing it perfectly to its level, in such a way, that, after several alternate movements of depression and elevation, you would imagine you saw an herbivorous animal in the act of masticating. On the sixty-eighth day we resolved to remove the wire which fixed the two fragments together, because the fracture must now have been united, if ever it was to be so, and because the inclination of the jaw to the right side was rather a necessary result of the loss of substance, than a proof that the fracture was not consolidated. We now saw that the patient had some reason for expressing his fear that his tongue was cut through, and we discovered the true cause of the

violent pain he had suffered. The two wires, passing obliquely from the right lower wise tooth to the upper left molar, had actually cut through more than one-half the thickness of the tongue, but as the fibres first divided became united as the wire penetrated more deeply, the latter were found in the middle of the substance of the tongue. They were divided and withdrawn, and the patient permitted to speak, after sixty-eight days of the most absolute silence. The artificial tooth was removed on the eighty-third day, and on the ninetieth the obliquity of the jaw to the right was much diminished. The face now recovered its symmetry by degrees, and when M. de R. left Paris, the chin seemed to occupy its usual place on the median line; the teeth of the lower jaw corresponded with those of the upper one, within the breadth of one incisor tooth; when the lower jaw was depressed, it inclined a little to the right, but recovered again its natural position when elevated. The articulation of sound was clear and distinct. The patient commenced to use solid food. The most close examination of the lower jaw left no doubt that perfect consolidation had taken place, a circumstance which might have been pronounced indeed, decidedly, from the symptoms before enumerated. However, the posterior fragment was a little more elevated than the anterior. In this state they acquired a perfect degree of union, considerably favoured by the docility, courage, and confidence of the patient, which did not desert him for a moment during the course of this long and painful treatment.

## THE LANCET.

*London, Saturday, October* 12, 1833.

Experience has shown but too often, that when a man has long held a prominent station at Court, and has been enabled by virtue of his high office, or supposed talent, to exercise the functions of authority, he becomes so puffed up by self-conceit, that he is only tolerated by his superiors, because they believe that he cannot be shaken off without inconvenience. Of course we are far from intimating that the present position of Sir Henry Halford bears any relation to the one here described. In fact, it would ill become us, considering the rumours which are afloat, to write with any degree of precision on the subject. Sir Henry is an important functionary, at least in his own estimation, and must be noticed, therefore, with becoming decorum. The busy tongue of rumour, however, pays no respect to persons in giving currency to strange surmises concerning this courtly physician. It is said that the baronet, having "lost favour" in the highest quarter, is about to withdraw from the anxieties of a profession no longer profitable, to his seat in Leicestershire, and there reflect on the chequered circumstances of bygone times. While full credence appears to be given to this report, in several well-informed circles, the Hall in the College in Pall Mall East has recently been the scene of secret evening meetings, the proceedings of which have, it is said, exhibited extreme bustle and hilarity. It is also reported, that at these meetings there were present certain meddling emissaries from the College of Surgeons and the Company of Apothecaries, and that Sir Henry Halford, as the presiding genius, displayed that species of tact and talent which furnished the best guarantee of his influence in the right quarter, and led the assembled monopolists to shake the very foundation of the edifice with their *cheers* at the anticipated ruin of the cause of medical reform.

Without affecting to believe either, we present both statements to the profession. It certainly is no concern of ours whether Sir Henry be well or ill received, either at the Palace or in Downing-street. It matters not to us or to the profession whether there have been morning, afternoon, or midnight meetings in the College of Physicians; but it is of infinite importance that Government should understand that Sir Henry Halford is not and *cannot be* the oracle of the medical profession, and that any scheme of reform sug-

gested by that individual, would be received with a general feeling of distrust, not to say indignation. That the monopolists are at work cannot be doubted; that some plan has been devised by them for preventing the profession and the public from enjoying the advantages which would result from a liberal change in the system of medical government and education cannot be questioned, and that these proceedings have received the full and active sanction of Sir HENRY HALFORD is more than probable. If we were to judge, indeed, from the tone and manner of some of the leading monopolists, we should be disposed to put the worst construction on the prospect before us, and to anticipate that the promised motion, in the House of Commons, for a committee of inquiry into medical abuses, will be rejected.

What, then, is the project of these boroughmongering monopolists? We are told that it is this, that Sir HENRY and his "FELLOWS" having abandoned all hope of continuing to enrich themselves and their connexions by controlling the appointments to all the medical offices of our great hospitals, they declare themselves ready to uphold the existing monopolies of the College of Surgeons and Company of Apothecaries, on condition that those bodies will support a claim which the Fellows of the College of Physicians are about to bring before Parliament, to empower them to grant, or, in other words, *sell* medical degrees.

That such a device should have emanated from the head of any rational being, is truly amazing; but far more astounding is the impudence of those persons who protest that the project will be successful, because, *and merely because*, it is supported by Sir HENRY HALFORD. Is it true, then, that this pampered President has given his underlings and sycophants to understand, that the Royal ear is accessible only to *his* recommendation in all matters concerning medical polity, and that Earl GREY and Lord BROUGHAM will not be permitted to present obstacles to the full consummation of his wishes? Is the report well founded, we ask, which attributes to this courtly Baronet a declaration of strong attachment to the "honourable" principles of the late Tory administration, an abhorrence of the unjust principles of the GREY ministry, and an expression of sincere satisfaction that *his cause* (the cause of the College) will not be decided by *Whig* arbiters?

There is, however, nothing to fear, as we feel confident that not one word of caution from the press is required by Earl GREY and his colleagues to develop the views of Sir HENRY, or to explain the mischief which would arise from the accomplishment of his objects.

Often has it been wisely said, that a Government in this country cannot be useful unless it be strong, and its strength can nowhere exist if it be found not in the favourable opinion of the public. Does Sir HENRY then believe, that if MINISTERS were blind enough to encourage his designs, *his* slavering adulations would prove equally beneficial to the Government with the approving voice of the whole profession—heard as that voice would be in every city, town, village, and hamlet, of the kingdom? We should not have thought this new scheme of sufficient importance to claim the least attention, had we not heard from authority on which the fullest reliance may be placed, that the monopolists are actually in motion, and that Sir HENRY is their appointed leader. Thus, we are urged to renew the recommendation which we have often given in this Journal, to the effect that medical practitioners will take every opportunity of explaining to members of the legislature the distracted state of the profession owing to the abuses which have been generated in the halls of the

incorporated monopolists. There is nothing to fear from the eel-backed President of the College of Physicians and his goodly associates, unless the members of the profession sleep at their posts, and abandon a duty, the conscious discharge of which is demanded by every obligation which can be considered binding in an enlightened state of society.

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THE performance of a very disagreeable labour has been rendered unnecessary, in consequence of a gratifying display of intelligence and good feeling by the students of St. Bartholomew's Hospital. In the last LANCET we promised to devote a few pages to "the history" of the election struggle of 1826, with a view to enable the students to form a just conception of the conduct of Mr. STANLEY respecting the appointment of Demonstrators. In that contest Mr. SKEY was marked out as the victim of Mr. STANLEY'S prejudice. The pupils, however, stimulated by a just sense of the importance of the office and of the attention which ought to be paid to their interests, resisted, almost to a man, an attempt to exclude Mr. SKEY from the chair of Demonstrator after that gentleman had received the earnest recommendation of Mr. ABERNETHY, and after, too, he had, by his unwearied exertions, won the favourable opinion of the class. A renewal of the scenes of that period would, under existing circumstances, be prejudicial not only to the pupils themselves, but to that improvement in medical discipline which so many zealous, experienced, and philosophic practitioners are energetically labouring to attain.

We must now acknowledge that we were guilty of an injustice to the students of St. Bartholomew, in supposing that they required a revival of the records of 1826 as essential to their perfect comprehension of the line of policy which the lecturer had found it expedient to adopt towards his Demonstrator,—an officer who had faithfully exercised his talents for the benefit of his "superior," during eight years of not over-agreeable occupation in the dissecting-room.

The pupils required no extrinsic aid to prompt them in the performance of a duty; they already understood the conduct of Mr. STANLEY; no republication of the proceedings of 1826 can make them feel a stronger conviction of the injuries that have been inflicted on Mr. SKEY'S reputation and prospects,—no historical revival could have the effect of bringing down upon Mr. STANLEY a more ample measure of condemnation,—than is to be found in the following resolutions:—

"THEATRE OF ANATOMY, ST. BARTHOLOMEW'S HOSPITAL.

"A meeting of the senior students of St. Bartholomew's Hospital was held in the Anatomical Theatre of that institution on Friday, the 4th instant, for the purpose of taking into consideration the propriety of presenting Mr. Skey, the late demonstrator, with some mark of their respect,—

"Mr. J. SLADDEN *in the Chair.*

"The Chairman briefly explained, that the objects of the meeting were not to consider *why* Mr. SKEY no longer held the office of Demonstrator: but to express their regret at his secession, and to present him with some tribute of respect for his indefatigable exertions to promote the interests of the school, while connected with the anatomical department of St. Bartholomew's Hospital.

"*Resolution* 1*st*. Proposed by Mr. KNIGHT, seconded by Mr. HITCHCOCK, and carried unanimously, 'That this meeting views with regret the absence of Mr. SKEY from the anatomical department of this school.'

"*Resolution* 2*nd*. Proposed by Mr. FURLEY, seconded by Mr. HUNTER, and carried unanimously, 'That a Snuff Box, and a vote of thanks, be presented to Mr. SKEY, in token of the marked admiration and respect of the Class.'

"*Resolution* 3*rd*. Proposed by Mr. MILLER, seconded by Mr. PONTEN, and carried unanimously, 'That a com-

mittee of five Students (who from themselves shall elect a treasurer) be appointed to receive subscriptions, and to carry into effect the foregoing resolutions.'

"The following gentlemen were then severally proposed, seconded, and unanimously elected members of the committee.

"Mr. KNIGHT, Mr. FURLEY,
Mr. SLADDEN, Mr. HUNTER."
Mr. ROCKETT.

Next to the restoration of Mr. SKEY to the office of demonstrator, nothing can prove so satisfactory to the independent members of the profession as this sentence of condemnation on Mr. STANLEY, passed on him unreservedly by his own students. Never, surely, was a purer tribute offered to justice, when it is recollected, that the court of inquiry is no other than Mr. STANLEY's own theatre, and the jurors who conduct the investigation, those very gentlemen who have witnessed, during a long series of years, the conduct both of lecturer and demonstrator. As there are few who will consider that Mr. STANLEY has not already received sufficient punishment for his wrong doing, we shall not endeavour to render more poignant the feelings of self accusation, of which he must be now the unhappy subject. But it is essential that we should offer a few general observations explanatory of the *system* of election in our hospitals, and of the encouragement which that system invariably receives in the whole of our chartered medical institutions.

Previous to entering on the general question, we must advert to a charge that has been directed against us by a hired tool of corruption. It is alleged by this despicable blockhead that we have "lent our best assistance to get up a riot," by, of course, having called upon Mr. STANLEY to explain his conduct in the presence of his class. A "lecture-room," exclaims the scribe of Longman and Co., "is not the fittest place in the world for deciding such points." Why, truly, if all lecture-rooms resembled the scribe's own, this would be correct enough, since it is not very probable that an appeal to empty benches would lead to any satisfactory decision. Of course we do not notice an accusation, coming from such a quarter, with a view to its refutation. It is, in short, for the sake of amusement that we cite the charge, because it has now the effect of placing Mr. STANLEY in a somewhat ludicrous position with respect to his own hireling writer. MACLEOD refers, with apparent exultation, to Mr. STANLEY's "statement," and, of course, was ordered to commend the withholding of an explanation from the pupils, on the ground that the class had no business to "interfere" in the appointment of a demonstrator. Admirable sagacity! But observe what happened in the Theatre of Bartholomew's Hospital, on the 9th of November 1826. On the morning of that day, Mr. STANLEY *himself posted a paper in the theatre*, calling a meeting of the students *that he might address them* concerning the appointment of Mr. SKEY to the office of demonstrator (LANCET, No. 168, p. 203); and, after a lengthened debate, the further consideration of the question was adjourned to the following day, when Mr. ABERNETHY's proposition for adopting the *ballot* and other suggestions had been discussed at great length.

Mr. STANLEY—aye, knavish Goth, Mr. STANLEY—said, "that *the* PUPILS *were* "*acting most properly in demanding their* "*just rights.* If they were not *satisfied*, "they had a right to *insist* upon every "condition being performed, or to a return "of their money."

Again, on Saturday, Nov. 25 (LANCET, No. 169, p. 252), in reply to a question from a pupil, as to whether it was to be considered that Mr. SKEY was appointed, Mr. STANLEY—aye, Goth, Mr. STANLEY—replied as follows:—"*I really am* "*ready to do whatever* THE CLASS *requires*

"*of me. I state, that if* THE CLASS *concur* "*in the appointment of* Mr. SKEY, I *shall* "*certainly concur in it. I am ready to* "*support the work of those, to the utmost,* "*whom* THE CLASS *may wish to have to* "*work.*"

Thus the precedent for calling on the pupils to "concur" in the appointment of a demonstrator, was established by the very ill-used Mr. STANLEY himself!

The gentlemen, then, studying in the medical school of St. Bartholomew, having very generously afforded to Mr. SKEY the best consolation it was in their power to bestow,—having by their kind resolutions lessened the agony of wounded pride, and sustained a reputation which ought not to have been attacked, we must regard the appointments as settled during the present session, and we trust that no circumstance will occur to disturb the tranquillity of any portion of the academical establishment.

But what, however, are a few of the items constituting the general question to which we have already adverted? They are to be sure "trifles light as air" in the estimation of the hospital functionaries, but when they are weighed by the sober judgment of men whose sensibilities have not been destroyed by a too earnest devotion to the interests of Mammon, are ponderous as the pillars of the structure in which the enormities are fostered. The anatomical and surgical system of our hospitals exhibits one huge machinery for *money making*. Every circumstance is rendered subservient to that one end, and the moving power of the entire contrivance is controlled by a very few individuals. If we take the summit and descend to the last step of the edifice, or if we start at the base and ascend gradually to the cupola, we shall invariably observe the scheme of operations tending to the accumulation of wealth. The pupils, for instance, are compelled to comply with the "regulations" of the College of Surgeons before they can present themselves as candidates for the diplomas—the first condition requiring that the "practice of a hospital in London" shall be attended by them during six or twelve months. Thus the Council of the College, consisting of twenty-one surgeons, continue to throw immense sums of money into the pockets of the chirurgical officers of the hospitals. But how, it may be asked, does it appear, that the Council of the College of Surgeons can be influenced by unworthy motives in framing a "regu-"lation" of this description? The answer is brief, but to the point;—*The Members of the Council are themselves those Hospital Surgeons in whose favour the law is made!* This *trading* connexion for the sale of medical diplomas and certificates being once "recognised" between the two classes of chartered corporations, the managers of the "certificate" shops defy public opinion, spurn the claims of genius and industry, and insist on their right to make their own *private arrangements* for the occupation of avowedly important *public offices*. Competition not being allowed, the students too soon ascertain that acquirements, no matter how distinguished, weigh less than dust in the scale of hospital patronage and favouritism. In a word, the offices are SOLD for large sums of money, and the *apprentices* of the surgeons are invariably regarded as the legal purchasers. Thus, it is found, that the student who has made no purchase, who has offered no bribe, no enormous *premium* with *sham indentures*, is irrevocably doomed to be excluded from every office of distinction and profit in the whole of our great hospitals.

On a further examination of the links of this odious chain of corruption, we find that for the mere liberty to *walk* through the wards, from twenty to thirty guineas are paid by each pupil. For permission to

carry a box in the wards, and apply a few plasters and bandages, upwards of fifty guineas are paid; and for the opportunity of performing such a *curative* operation as the one executed by the "*scientific*" CASWALL, upwards of seventy guineas are thrown into the coffers of the surgeons! That the physicians and surgeons of our charities ought to be well paid, liberally rewarded, for their valuable services, will not be questioned; but is it just that they should derive their emoluments by trading with the sufferings of the sick-poor? Be it known, moreover, that the system of medical education sanctioned at Bartholomew's and the other chartered hospitals, is under the immediate direction and protection of the *non-medical governors* of these charities. True it is that the hospitals belong to the public, that the theatres of anatomy and the dissecting-rooms which are attached to them, have been built on public foundations, and with the aid of public funds; but the *charters* authorise the governors, as the trustees of the public, to exercise an unchecked control in regulating the affairs of these academic-eleemosynary establishments. From what has been stated it appears that the College of Surgeons, in the exercise of its important functions, *compels* medical students to produce "certificates of competency" from lecturers and other medical officers, who obtain their places either by family influence or by purchase. While such a frightful system is upheld by the direct sanction and authority of *law*, what advantage could be gained by the success of a partial struggle in one institution? On the public no benefit could be conferred; to the profession neither increased respectability nor emolument would be afforded; "honour" would remain at the disposal of the "dishonourable," and the royal charters would continue to furnish the guilty with shields of legal protection.

To Parliament, then, our appeal for relief must be addressed; and we have the consolation of believing that the appeal will not be made in vain.

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The struggle at the Aldersgate-Street Dispensary is approaching its crisis, as the contest must terminate, virtually, within a very few days.

Previously, however, to the day of election, some proceedings are to be transacted, which, in all probability, will be followed by most important results.

About a fortnight since we alluded to the probability that a meeting of the profession would be held in the metropolis, for the purpose of taking into consideration the course which should be adopted in order to assure the ex-medical officers of the Aldersgate-Street Dispensary of the general feeling of admiration which their conduct had inspired.

The arrangements, we understand, for holding that meeting, being completed, it is announced by public advertisement that it will take place at the Freemasons Hall, Great Queen Street, this evening, at six for seven precisely, Dr. Elliotson in the chair.

It is conjectured, from the extraordinary excitement which prevails amongst all ranks of the profession, that this meeting will be attended by not less than a thousand physicians and surgeons, and it is hoped that the students belonging to the whole of the medical schools will take this opportunity of testifying their approval of the determination of the medical officers of the General Dispensary, to resign their seats, and thus sacrifice their own interests, in order to uphold the honour and respectability of the profession.

The proceedings of this meeting will scarcely have terminated, when a general assembly of the subscribers of the dispensary will be held at the Dispensary House

in Aldersgate Street, for the purpose of taking into consideration the circumstances which led to the resignation of the Duke of SUSSEX as President, and the whole of the medical officers of the institution. This meeting has been called by one of the Vice-Presidents, in consequence of a requisition which was presented to him, signed by 108 of the governors.

One of the laws of the institution requires that the testimonials of candidates for vacant medical offices, should receive the approval of the medical committee of the institution, before the candidates can be deemed qualified for election.

In pursuance of this law, the medical committee of the dispensary assembled on Wednesday last. It consisted of Dr. WALLER, Mr. LOBB, Mr. JONATHAN PEREIRA, Mr. LAW, Mr. COWARD, Mr. JAMES CLUTTERBUCK, Mr. JEREMIAH PEREIRA, Mr. HUME SPRY, Mr. CHOLMONDELY, and Mr. W. H. STEVENSON.

At this meeting it was moved by Mr. LOBB, and seconded by Mr. CHOLMONDELY, "That as a general meeting of the "governors was advertised to be held on "Monday next, for the purpose of inves- "tigating the circumstances which led to "the resignation of the medical officers, "the committee did not feel authorised to "examine the testimonials of any candi- "date, until they should be made ac- "quainted with the decision of such "general meeting." An amendment was then moved by Mr. BRIEN, of Northampton Square, "That the committee feel "themselves authorised to proceed." On the amendment being put from the chair, there appeared for it, Mr. BRIEN, the mover, and Mr. SPRY, the seconder. Against it, all the members of the committee but Mr. STEVENSON, who did not vote. For the original motion of postponement there were,

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| Mr. CHOLMONDELY, | Mr. LANE, |
| Mr. CLUTTERBUCK, | Mr. J. PEREIRA, |
| Mr. COWARD, | Mr. JEREMIAH PEREIRA. |
| Mr. LOBB, | |

Against the original motion, Mr. BRIEN. Neutral, Mr. SPRY and Mr. STEVENSON.

When the determination of the Medical Committee was communicated to the General Committee, the excitement amongst this latter body became extreme. Language of a very violent description was employed, and the Treasurer, Mr. HERRING, the druggist, *threatened to get "an- "other set of medical men* to perform the "duty of examining the testimonials."

In accordance with this threat a resolution was passed appointing a sub-committee of three, "to look over the list of sub- "scribers to the Dispensary, and *select* "other medical gentlemen," to perform that duty which Dr. WALLER and his colleagues had, greatly to their honour, declined to execute.

Whilst all this is passing, ANOTHER CANDIDATE for the office of surgeon enters the field!—a worthy colleague of that scientific operator, CHARLES CASWALL. The name of the new candidate is, ROBERT BURKIT WYATT. If we are not greatly deceived, these worthies will discover, when too late, that every *gentleman* in the profession will not only refuse to meet them in consultation, but will invariably shun their society. For the present we hand these advertising adventurers over to the great meeting of their professional brethren, which is to be held this evening in the Freemasons Hall.

When we take every circumstance connected with this affair into consideration, we congratulate the profession that two individuals, calling themselves "surgeons," have had the audacity to present themselves as candidates for the vacant offices. In the absence of such a violation of good faith—of such a gross violation of

professional privilege—we should have had no means of ascertaining the fervid commendation so universally bestowed on the ex-medical officers of the dispensary, and of the execration with which their degraded opponents, the candidates, will be everywhere assailed. If CASWALL and WYATT are conscious of having acted with integrity, *let them attend this evening at the Freemasons' Hall* and defend themselves, in the face of their professional brethren.

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THE cholera has continued to advance in Paris since the receipt of our news from that capital, published last week, but the rapidity of its march has not been accelerated. On the contrary, the rate of its progress was rather diminished within the few days preceding the transmission of information to us on Monday last. The number of patients admitted into the *Hotel Dieu* up to Sunday, was about 120, of whom more than one-third had died. Twenty new patients have been admitted into *La Charité* since the 2nd ult. Of these, six only have fallen victims. Our reporter in Paris saw six cases amongst the children at the *Enfans Malades*, all of which died. The symptoms and morbid appearances in those cases were exactly the same as those which characterised the disease when it was formerly in Paris, so that thus far it has not been in the least modified by its sojourn. No surprise, however, can be felt at this, if we yield our faith to the views expressed by Dr. TYTLER at the *Medical Society of London*. The cholera patients are *isolated* in all the hospitals but the *Enfans Malades*, where they are mixed with the other cases. Respecting the treatment adopted in Paris, we can add nothing to what is already known in this country respecting it. It is, equally inefficacious with that employed last year, and the greater part of the physicians seem content with allowing nature to "work out her own salvation," if she will, without any interference on their part.

In this country not a few cases are still under treatment in the metropolis, and new patients are being added to the number. The extent of the disease in London is not, however, sufficient to excite much observation. But repeated intimations are given in the provincial journals, both of England and Scotland, of the reappearance of the disorder in other localities. At Whitby, it has reached such an extent as to call for very active exertions on the part of the medical gentlemen of the town. In a letter, on the subject, which we have received from Dr. WM. ALEXANDER, dated Scarborough, Oct. 7, we learn that the disease this year has destroyed in that town, in five weeks, nearly four times as many persons as were carried off on its previous visit. The following are extracts from the letter; they will be read with interest at this moment:—

"I have just returned from a visit to Whitby, undertaken with a view to ascertain the nature, progress, extent, and most successful methods, of treating this disease there, and my investigations have been materially aided by the kind reception and able assistance uniformly afforded me by the medical men of the town.

"Of fifty-four cases last year, twenty-seven died, among whom were four nurses of five that were attacked. The epidemic of the present year has already, in five weeks, destroyed nearly four times that number, though the proportion of recoveries to deaths is greatly in favour of the mitigated severity of the disease, and the improved method of treatment. The deaths on Friday, the 4th ult., were three, and, on the following day, but two. But diarrhœa is wofully prevalent, and portends disaster, and a still more violent irruption of the scourge. Under such circumstances, it became a matter of great moment to be able to *distinguish* that form of looseness which threatens to end in the more severe stages of cholera, from that which occasionally occurs at this season of the year. This distinguishing mark is to be found in the fact, that the choleric diar-

rhœa is *unattended by pain, griping*, or other abdominal uneasiness, and that the feces are nearly always of a palish and dull yellow hue, like *yeast*.

"While the medical gentlemen of the town are unanimous in regarding the cholera, in all its stages, as infectious, they are by no means agreed as to the most judicious treatment. Two cases have recovered from the blue pulseless stage, by Dr. Shute's plan of practice, though, in one of them, thirty grains of calomel had been given, besides the cold water *ad libitum*, of which six or eight gallons were taken. In this case there was *some* consecutive fever, but not so much as usual. One gentleman gives the nitrous acid successfully in the choleric diarrhœa; and calomel, with a view to procure bilious stools; while another, who had had 200 cases, and only twenty deaths, used the chalk mixture with kino and oil of peppermint, and rarely gave calomel, except where he observed bile in the dejected matters; grain doses of opium for the spasms with sinapisms, and prussic acid when the former were not retained, in doses of two drops.

"The disease is not confined to any part of the town now, as at first, but prevails generally. An hospital has at length been erected, and would receive its first inmate on Saturday last. The cases treated last year in the hospital, were noticed to be more successful than those treated out of doors, and it is to be hoped that this establishment, together with the laudable and active exertions of the Board of Health, will speedily arrest the progress and extension of the disease."

While practitioners are thus compelled, from want of superior information, still to trust to chance the results of five-sixths of those plans of treatment, eagerly and humanely adopted by them, which appear to afford any hope of success, a new and startling light is being cast upon the disease in the metropolis. We refer to the disclosures made by Dr. TYTLER. As the debate in the *Medical Society of London* advances, it increases in interest; and if we are not greatly deceived, this rice question will eventually prove one of the most important subjects that has yet been introduced to the notice of the medical profession, in connexion with the subject of cholera. The members are yet only on the *verge* of this inquiry.

## LONDON MEDICAL SOCIETY.

*Monday, October 7th*, 1833.

Mr. KINGDON, President.

### CONTINUATION OF DR. TYTLER'S ARGUMENT IN PROOF OF THE PRODUCTION OF CHOLERA BY THE USE OF RICE AS FOOD.

THE room was so fully attended this evening, that many of the members were unable to obtain seats. The disclosures made at the last meeting had excited a high degree of interest and curiosity. The statements made to-night materially increased the feelings awakened on the subject, and an extent of conviction was created in the minds of the audience, such as is rarely produced at so early a period in the development of novel statements before a scientific society. Nearly seventy gentlemen of the highest respectability and character were assembled; and amongst this large number, expressions of dissent to the views of Dr. TYTLER came but from two gentlemen,—with what degree of justice in those instances must be estimated from the report. In fact, the tribute of credence paid to Dr. Tytler's statements and views was very marked. Many individuals, we know, attended with a feeling that they should unequivocally oppose them; but scarcely a disbeliever left the room, if we might judge by the tokens of approbation elicited. He this evening resumed his narrative, and replied to some remarks, (with more simplicity occasionally than force,—the error of an unpractised debater,) but time put an abrupt end to the comments, and Dr. Tytler, therefore, promised to attend again next Monday to undergo such further interrogation as might be instituted by the meeting. We now give as full a report of the proceedings as possible.

Dr. TYTLER (having first of all presented to the Society an arrow head which he had extracted from the left mastoid process of a sepoy, who recovered from the accident) spoke thus:—I will now, gentlemen, proceed from the spot at which I left off last evening, when detailing the history of the disease in India. Having, as I told you, satisfactorily discovered the deleterious effects of the rice at Jessore, I was directed by general orders in Council passed in Sept. 1817, to leave that district and proceed to the Upper Provinces, to take charge of the medical duties of the civil department at Allahabad. I did not, however, leave Jessore until the 22nd of October following, and it is an importan

fact, that while I was the first individual who saw a case of the disease in that district, so it fell to my lot to witness the first case which occurred, many months afterwards, at Allahabad, whence a new stream of the virus was poured, as from a new centre. The reason why it broke out in the latter station I will now describe. When I reached Allahabad, which was in January 1818, no disease of any description existed there, either amongst the European inhabitants or the natives residing within that populous city and its immense suburbs. Some time previous to that period the Upper Provinces (Allahabad included) became exhausted of their usual supply of food, in consequence of the quantities which were required there for the use of the troops in the field. To compensate for this deficiency the exportation of rice was encouraged by means of a bounty placed on its importation into the higher stations of India, and a supply of that grain was at once directed to them from Calcutta. Now Allahabad was the first of those stations at which the bounty rice was landed. In my journey from Jessore I went to Calcutta, and thence to Allahabad, and it happened that the boats containing the rice were leaving Calcutta at the same time as myself. Consequently we were on the river together. But my boat outstripped the rice boats, and I reached Allahabad some time before the rice. I arrived there in the month of January, and found grain of all kinds exceedingly scarce. Even the worst and coarsest sort of rice was so scarce and dear in Allahabad, that the mass of the population could not purchase it. I forthwith went to the magistrate, and told him that the rice was on its passage, and informed him of my opinion of the effects it would produce when it arrived, should it be sold and consumed. Now observe; up to this time and on to February and part of March, not a single case at all resembling cholera had occurred. In Allahabad or its neighbourhood cholera indeed was scarcely known even by name to the natives. But in March the arrival of the boats took place; their cargoes were landed, the rice got into the markets, and was everywhere sold, and exactly what I had told the magistrate would occur, and had warned the incredulous people against, took place. My cautions to them had no effect. They heard them with astonishment, and refused to attend to them, and thenceforth Allahabad became a second great focus for the dissemination of the disease. The first case which I witnessed there was that of a waiting woman, who was attached to the family of Mr. Henry Shakespear, the judge and magistrate. It occurred on the 21st of March, and I felt it my duty at once to announce it, and my opinions on the subject, in a letter addressed to one of the Calcutta journals, the *India Gazette*, in which paper it was published. Immediately after this the disease spread all over the town with a greater or less degree of violence precisely as fresh supplies of rice arrived from Bengal, and was opened for sale in the bazars. The disease at the same time made its appearance in all the neighbouring villages, and in every part of the district to which the rice found its way. In six months ten thousand persons died in the environs alone of Allahabad. Yet, astonishing as it may seem, no injunctions could induce the inhabitants to desist from eating this poisonous food.—I now arrive at a point which requires that I should detail to you a most important fact. At my urgent suggestion, the rice was kept out of the jail of Allahabad. The magistrate prohibited in the strictest manner the sale of rice to the convicts; a little had already obtained admission, but the moment its further entrance was stopped, the disease, which had begun there in one instance, was checked, and not two persons died in that jail during the whole of the six months continuance of the disease in the city, though there were 700 prisoners within its walls; and this, too, at a time when the convicts worked in the very streets of a city which the disease was thus scourging. (Dr. Tytler here read a letter from Mr. Shakespear, the magistrate, fully attesting the truth of these statements.) Well, I continued five years in Allahabad, during the whole of which time no rice was admitted into the jail but what I personally approved of, and during which period it was entirely clear of cholera, though that was not the case in any other jail in India.—I will now proceed over the rest of the ground that I intend to travel at present, pretty quickly. But, previously, I will advert to one point which strikes me at this moment, and which refers to the year 1818. It has been said, and may be urged as an argument against me, that the disease was introduced into the Mauritius by the *Topaze* frigate. No statement, however, can be more unfounded, or more pernicious in its consequences. The facts are these:—In the year 1818, the inhabitants of the Mauritius suffered greatly from destructive fires which occurred in the Isle of France. Feeling for their distresses, the merchants of Calcutta sent them, as a present, large quantities of the pernicious rice of 1817. It went from Calcutta to Port Louis, reached its destination in 1818, and came

into use in 1819, and immediately the cholera broke out amongst the slaves of the island, who suffered tremendously. A committee of medical officers was immediately called by General Darling, who (probably from what he had seen in the Indian newspapers) directed their attention to the effects of rice as food. But they said that they had no reason to apprehend that the cause of the disease was in the food. No cause for the disease was, therefore, recognised by them. Of this committee, Dr. Burke, the present inspector-general of his Majesty's hospitals in India, was the president. Well, in 1830, I met Dr. Burke in Calcutta, and had an interview with him. He told me that he was particularly anxious to see me on the subject of the rice, and I accordingly laid before him the facts I had accumulated. He examined them carefully, said he was perfectly astonished at them, admitted that there could be no doubt as to the real cause of the disease in the Mauritius, said that my opinion had hitherto not been understoood, gave me several facts and arguments in confirmation of the disease on that island having been produced by the rice sent from Calcutta, added that he considered my statements and conclusions to be of the utmost importance to medical science, that they were particularly valuable to medical officers in the charge of troops, and, finally, authorised me to state his opinions to this effect, in his name, to the Medical Society of Calcutta. I now revert to the point from which I deviated to state these facts.—In 1823 I left Allahabad, and reached Calcutta in the April of that year. On my arrival, I was examined by the Medical Board of that Presidency, with reference to the question before us, and for five hours was under interrogation respecting it. What was the result? Why, the Board acknowledged that my facts were incontrovertible, and that my arguments thereon were valid; but they came to the conclusion, that though the vitiation of the rice was so great, and produced such dreadful effects, it was an evil of too great magnitude to admit of a remedy—and there the matter ended. In October 1823, I reached Batavia, on my road to Bencoolen, I having been appointed chief-surgeon of Fort Marlborough, and here I come to the mention of some important facts which were furnished to me by Capt. Bowie, commander of the brig *Elizabeth*, showing the deleterious nature of the vapour arising from rice, on the crews of vessels, in the holds of which large masses of that grain are confined. The facts are contained in the following letter, which was afterwards published in the Calcutta *John Bull*, Dec. 1823. (We subjoin a copy of this letter at the end of our report.) In this place I will take the opportunity of observing, that it has been remarked that I have not proved the disease in England to be the same as that in India. True, I have not, for I have seen no case here, but I will tell you what are the symptoms of the disease in India, and it will be for you to say whether they are identical. The symptoms are the total absence of pulse, rigidity of the skin, and, as far as can be seen in a native, lividity of the nails, sinking of the eyes, collapse of the face, dreadful spasms of the limbs, particularly of the toes and legs, which the natives attempted to relieve by binding themselves tightly with ropes; cold perspirations, and discharges of a whitish watery liquid from the stomach and bowels.

Mr. DENDY.—Was there any strangury—any suppression of the urine?

Dr. TYTLER.—That was not noticed by me; but one case in which there was strangury is reported in my printed documents. On the 30th of November 1823, I reached Fort Marlborough, on the island Sumatra, and took charge of the hospital of convicts at Bencoolen, who were transported from India to that place. Sumatra produces large quantities of *laddang paddy*, or rice, which grows on the sides of hills without water. This *paddy* is consumed by the natives of Sumatra, while the *convicts* are fed with rice from Bengal; and when I arrived the convicts were eating that particular kind of rice which I had discovered to possess deleterious qualities. The consequence was, that the hospital was filled with the most dreadful gangrene,—a gangrene so horrible that I know not what to call it, which will adequately express the shocking nature of the disease. At my suggestion, Sir Stamford Raffles, of whom you must all have heard, ordered the diet to be changed, and a more nutritious and wholesome aliment was accordingly given out, the result of which was that the gangrene wholly disappeared. This was reported to the Bengal government.—I now skip on to the month of January 1832, at which time I had charge of the 50th Regiment of Native Infantry. That corps left Gorrukpore in Northern India, for Barrackpore at the Presidency of Calcutta; and, in consequence of the difficulty of carriage, I was under the necessity of sending my sick, and the greatest part of the hospital stores to Calcutta, while the regiment itself was marching by land. When the regiment reached Chuprah, it was suddenly ordered into the field, in consequence of the *Cole* insurrection. I was thus placed in the most difficult situation that a medical man

could stand in, having only a limited supply of medicine with me for an ordinary march. At Tikoo we were joined by a detachment of cavalry, and some European artillery. These troops, including the departure from Gorrukpore, marched several hundred miles through what is considered as the most unhealthy part of India—the very worst jungles of that country,—and it was anticipated that the whole of the regiment, which was a very fine one, would perish in the wilderness, or fall victims before the campaign was completed. This march was accomplished between the 12th of January and the 1st of May, when the regiment was divided, and at that time only one sepoy had died, and no cholera or pestilential disease raged amongst the troops. Yet the only precaution that I took during this tremendous march, was that of warning the sepoys against the indiscriminate use of rice, while the expenditure of medicine in the campaign, under that caution, was literally nothing. After the regiment divided, the right wing, with which I was marching to Barrakpore, was again ordered into the field, in the Jungle Mehauls, and entered on a fresh campaign, against Gunga Narain Sing, and the rebellious Chooars; but so little were the troops affected with sickness, that they reached Burrabazar on the 12th of May, 1823, and, on the morning of the 14th, though only 300 strong, defeated and dispersed Gunga Narain Sing's army, consisting of nearly 5000 armed Chooars, which suddenly attacked our camp on that day.—In June, the right wing of this regiment proceeded to Bancoorah, and was exposed to the whole of the rains in temporary huts. Yet no cholera made its appearance in those troops, although they were hutted close to the walls of the jail, where the cholera prevailed to an immense extent. This then was exactly the converse of what occurred at Allahabad, as I was now in charge of *the troops*, and another medical officer in charge of *the jail*. Mr. Cheek, the surgeon in charge of the jail, asked my opinion respecting the existence of the cholera in his hospital. I pointed out to him the presence of the deleterious rice in his jail, and showed him the documents I have now shown you; and to prove to him that the disease was not contagious, I inhaled the breath of one of his worst cases. The consequence was, that Mr. Cheek recommended to the magistrate that an alteration should be made in the diet. It was thereupon changed, and the effect was, that the disease almost wholly disappeared during the time that the alteration in the food continued. These facts are proved by the documents I now hold in my hand for the inspection of any one who would like to peruse them.—This concludes the facts I will at present intrude upon you with respect to *India*; but before I leave the subject I will present some to you which occurred in other quarters. In August 1832 a fearful disease raged in the prison at Charleston in the United States of *America*, consequent on a change of diet amongst the prisoners, from potatoes to rice. The facts are these: on Friday the diet was changed, and on Sunday the jail-hospital was filled with patients. These facts are detailed in the *Columbia Sentinel*, which is now before you.—In 1832 the cholera prevailed very destructively in *Paris*, during which rice was distributed in charity by order of the municipal authorities. Here then the rice is traced to Paris, (where it must have been *before* the cholera broke out,) and in 1833 the same disease exists in London, and in the shops of this city the vitiated rice is selling at the rate of three halfpence a pound.—I maintain then, that my opinion is based on as solid grounds as any ever delivered in medicine. If, unfortunately, I have failed to produce conviction in your minds, as the facts are certain, it is rather because I am not equal properly to place them before you, than from any deficiency of weight on their part, or want of intelligence on yours. If such should be the case, the blame must wholly rest with myself.—I have now only one thing more to explain, and that is, the mode in which the diseased rice is brought into this and other countries.—Previous to the year 1813, the trade between India and Britain, was solely in the hands of the East India Company, whence it was called "the Company's monopoly;" and the revenues of India being entirely in the hands of the Government (that is the Company), only the best articles of produce were exported from India; for the producers did not find with the Government any sale for the refuse produce of their lands. It was not the interest of the Company to trade in bad articles. Hence the rice *exported* under the Company's monopoly, was the best that could be procured. Hence, also, the Bengal rice then possessed a high reputation in Europe. But, in 1813, the whole state of commerce became changed. The trade with India was suddenly thrown open by the modification of the Company's charter by the Parliament of Great Britain; and from that event must be dated the exportation of bad rice from India into Europe. The free ships which reached India in 1814, 15, and 16, were supplied with cargoes of rice which had been accumulating in the

markets of Calcutta from want of a sale for it. Now, in 1817, the rice crops, injured by the following causes, were reaped:—1st. The grain was blasted by the unparalleled wetness of the season in which it was grown; and, 2ndly, it was cut before it was fully ripe. The reasons why it was so cut were these;—the necessities of the natives were very urgent before the harvest was ready, the crops of the preceding year (1816) having failed; and an encouragement was given by the allowance of the bounty I have before mentioned, to reap too soon, in order that the owners might send the grain for sale into the Upper Provinces. In 1818, an Act of Parliament was passed opening the trade direct between India and the ports of the Mediterranean, and immediately an immense quantity of the rice of 1817 was exported into Gibraltar, Malta, &c., whence it got to Cadiz, and the result was, the well-known disease which broke out amongst the Spanish soldiers in 1819. It produced so dreadful a pestilence in that army, as almost to destroy it.* Since then, a market has been found in Europe for the *refuse* of the rice crops of India, which did not previously exist, as it is the object of the free traders to buy cheap, that a ready sale may be obtained, while it is a great object with the natives of India to sell the traders whatever is not disposable in India. Annually, an immense quantity of rice is grown, which used to be considered so bad in India, that it was thrown into the rivers. That rice is now saved, and is brought over in vast loads to Europe, and sold and used as food. Almost every grocer's shop in England contains it, and it has become a common food with the pauper population of this country. From Britain, quantities of it are carried to the continent, besides which it is carried direct from India to France in French bottoms. It is taken to Trieste, whence it finds its way over Germany, and is carried through the Bosphorus into the Black Sea to Odessa, whence it is conveyed all over Russia, and as land-carriage is excessively dear in India, and water-carriage comparatively cheap, immense quantities of this rice are carried to Batavia and other ports of the eastern islands, where it is embarked on board of Dutch and Hamburgh bottoms, and thus makes its way into innumerable other ports of Europe. Mark the progress of a free trader. The captain and officers have nothing to do with the cargoes of the ships. They merely navigate the vessels, and, generally, very well. When the ships reach the Hoogley (the branch of the Ganges which passes Calcutta), the captain, officers, and most of the crew, generally reside on shore. The bags of rice are put on board by natives who know nothing of its quality. That rice is procured in the bags by an agent, from a sirkar, for the owners at home, and *he* also knows nothing more of the rice than what he sees it designated in the commercial papers, "fine," "coarse," "marketable," &c. The Bengalee sirkars are known to be the most unprincipled set of dealers in the world. Their only object is to acquire money, without reference to the quality of the article which they sell. These sirkars purchase from the zemindars (landowners) the refuse of their lands, and the zemindars, finding a market for the inferior rice, urge the ryots (or peasantry) to cut the rice, to supply the markets, without reference to the grain being ripe. Hence, by means of the free trade, and the peace which succeeded the battle of Waterloo (for it was that, don't you see, which opened the continent,) a market has been found for the very worst descriptions of rice, which was not in existence anterior to the year 1813. The disease and the free trade therefore unhappily accompanied each other.—Such, gentlemen, is the outline of the events on which my opinions are founded. I could easily fill it up at great length, but this I refrain from doing, for it may be perfectly clear to you without. If, however, any part is doubtful or obscure, I will endeavour to explain it on an intimation to that effect. I have at present only to return you my grateful thanks for the attention and liberality I have experienced during these two nights. Gentlemen, if the Napoleons and Nicholases of the age are to be handed down to posterity as destroyers of the human race, shall not this Medical Society receive its share of commendation for preventing further slaughter through this dire pestilence? This you will have done, by allowing a perfect stranger to come before you, whose only claim was his avowal that he had truth to declare. You have listened to that truth with a degree of liberality, which, I will not say, is unparalleled, but never surpassed by any body of men whatever; and while I return you my personal acknowledgments, I feel that I stand upon higher ground, and avow that I am proud to belong to a pro-

* The political consequences of this event were remarkable. Ferdinand's army was assembled at Cadiz, previous to sailing for South America, for the purpose of reconquering the revolted provinces of that country. The army being destroyed by the pestilence thus, apparently, introduced, South America was liberated from the yoke of Spain. This is but one link of the singular chain of events that resulted from the demolition of that army.—*Reporter L.*

fession which can boast of men, who, without prejudice, can come to the investigation of a novel question as the members of the London Medical Society have done.—*Loud and general applause.*

Dr. WHITING.—The Society, Sir, is never better employed than in receiving and attending to facts connected with medicine, and especially when relating to the disease now under its consideration. We are deeply indebted to this gentleman for laying these statements before the Society, and, through the Society, I presume, before the profession. We are not, it is true, prepared to say, that the consumption of rice has been the cause of cholera in this country, for we are as yet incapable of pronouncing a decided opinion on the subject, our attention having never before been called to it; but now that these facts are before us, we can endeavour, should the unhappy necessity, which Heaven forbid, again occur in this country, to ascertain what share rice has in its production. On looking back, however, I do not remember a single case here in which it has been said or surmised that rice was eaten prior to the appearance of the disease. Rice, certainly, may not have been thought of, for we are accustomed to regard it as a harmless grain, but I think I know some instances in which no rice had been used. Yet it *may* have been. On a future day, however, some certain conclusion may be arrived at on this highly important question.

Dr. JOHNSON.—Not having been present last evening, I do not know that I ought to make any remarks on what has to-night fallen from Dr. Tytler, as he may on the former occasion have used many ingenious arguments in support of his views of which I am ignorant. But I should like to know how he explains the facts of cholera having run all along one bank of a river, and not touched the inhabitants of the other,—of its having committed extensive ravages in one wing of an army and left the other free,—of its having severely raged on one side of a street, and not on the other,—the people in each instance all using the same kind of diet. These things are very difficult to reconcile with Dr. Tytler's statements. When the doctrine of pernicious rice was broached and strongly maintained, by the able and acute gentleman before us, in India, it made no kind of impression there. Indeed, I do not recollect one single convert to his views. In the three medical reports from the three Presidencies, nothing whatever was said of them; they were merely alluded to as peculiar opinions. How strange, also, it is that amid all the free trading with England it should not have broken out here before 1831, and that even then it should first have appeared in Sunderland—a town which has very little direct communication with the East—and should have spared London for five or six months! Moreover, cholera has prevailed in many places where rice has scarcely even been known. I myself saw cases of cholera in huts in the Highlands of Scotland, the inhabitants of which would not have known rice had they seen it, and where the families lived almost entirely on oatmeal. The disease behaved with the same rudeness in Ireland, where they have only potatoes and butter-milk. It crossed over to America, and raged far worse there than it did here. Dr. Tytler will say, "It was because they ate rice there;" but I reply, "They have no occasion to use a grain of bad rice in America, for it is well known that the Carolina rice is the very best in the world." In short, Sir, I have not this night heard a single fact which induces me to believe that rice produces cholera, but, on the contrary, I have as good reasoning as Dr. Tytler for saying that cholera produces rice, in proof of which I might refer to the rice-water evacuations which notoriously result from the disease. *(Laughter around.)*

Dr. TYTLER.—May I answer that gentleman? In the first place, then, I will reply to his question about its appearing in some wings of a regiment, and not in another, when marching, by reading the following extract from the *Calcutta Journal* of October 7 1819:—"A part of the Bengal force, with some of the Madras troops, were detached to Canada, when, on their return, they discovered that ottah was not procurable; consequently they lived for about six days almost entirely upon rice. The first march they made on their return, the cholera appeared in the detachment, and continued to rage with great fury for ten days afterwards." And this was written by an adversary, who, struck with the force of the fact, told me to make the most of it. As to his objection respecting the two sides of a street, why the fact is, that in such instances the people on one side had eaten the diseased rice, and those on the other had not. *(Laughter.)* * The fact is, Sir, in short, that to the great influence which Dr. Johnson's writings have had in India is owing

* We understand Dr. Tytler imagined that Dr. Johnson alluded to the occurrence of the disease under such circumstances in England, where Dr. Tytler, we believe, considers that if such a phenomenon ever took place, it must have arisen from the people on one side of the street purchasing their bread or rice from one particular baker or grocer. In India, he contends, no such peculiarity ever distinguished the progress of the disease.—*Rep. L.*

much of the circumstance that the extraordinary facts which I have now laid before this Society, maintained no footing there after he had pronounced an opinion against them in his journal. When Dr. Johnson received my statements and papers, he wrote in his "Medico-Chirurgical Review," for October, 1818,—"Dr. Tytler here and throughout the paper, labours to trace the cause of this epidemic to damaged rice, but the reasonings are so bad and the facts so dubious, that we entirely omit them." I say that Dr. Johnson's authority is nearly predominant there, and he pronounced against my statements. Hence to Dr. Johnson, and to Dr. Johnson only *(with great warmth)*, do I, in a great measure, ascribe the spread of the cholera subsequent to my discoveries. Then as to the rice-water evacuations showing that "cholera produces rice," why, ah! ah! I might say, how came rice-water evacuations to exist at all if no rice was taken? I wished, Gentlemen, to refer as little as possible to official reports during this investigation, but as Dr. Johnson has quoted them in the Madras and Bengal reports, I must do so. In the first place Dr. Johnson will find, in the Madras Medical Board Report, that my opinion is alluded to; and in the Bengal Report, it is stated, that "much bad rice grew in 1817;" and in the introduction to that Report, is mentioned the irruption of a disease which destroyed Col. Pearse's detachment in 1781. From the statement given in the Medical Board's Report, there is no question that that disease was the same disease as that which appeared at Jessore in 1817. Yet, in the Report, no mention is made of bad rice being eaten, although it has since come out by means of the *Indian Military Repository*—a work, in the publication of which I had no concern,—that Col. Pearse, in 1781, actually complained officially, that the red rice which was then supplied to his troops, was "of a very inferior and prejudicial quality, and produced violent pains in their bowels, and fluxes." It is not necessary that rice should be eaten in the shape of *grain*. The rice is eaten in all shapes. It is well bleached, and comes (amongst other forms) in that of flour, which cannot be distinguished from wheat flour, and we know what is done with it then. (*Hear, hear.*) Besides, here is the *kun* or *koora*, a rank poison, which, when ottah is dear, is mixed with ottah, and eaten by the poor. Dr. Johnson next refers to Ireland. Why there was a great famine in that country, to relieve which the people of Liverpool sent cargoes of rice over as gifts, as I read in the papers, and disease naturally followed. Then, as to cholera in the Highlands, when Dr. Johnson says that rice is never seen there, I have only to say that a Highlander once told me that rice could not be the *cause* of cholera, because he was entirely fed when young upon rice, and yet never had the disease. In answer to what Dr. Johnson says about the banks of a river, I reply—(We did not here catch the Doctor's answer; but it was to the effect, that the supply of rice by boats on rivers might take place at the periods in which the disease ensued, in exact accordance with the progress of the boats, and yet be successive as regarded the intervals of its irruption.

Dr. JOHNSON.—I am sure Dr. Tytler exonerates me in his heart from the charge of being so high an authority in India.

Dr. TYTLER.—Justly or not, your name stands higher there than any other medical writer.

Dr. JOHNSON.—Well, I can only be gratified at the fact. As to the occurrence of cholera on one bank of the river soon after it has appeared all along on the other side only, and not simultaneously with it, it is incumbent on Dr. Tytler to show, in order to account for that, that boats laden with rice were, after going up one side, taken down the other, and had their cargoes sold to the inhabitants on shore. It also lies with Dr. Tytler to show, that a poisonous ottah is made by mixing *kun* therewith, of which we have no proof. Respecting the appearance of the disease amongst the military, also, how can Dr. Tytler account for the fact, that on the removal of the troops a few miles from the spot in which it began amongst them, the disease ceased? And pray how comes it that a gale of wind lately blew the cholera entirely away from London? Did it blow away rice and flour and all, at the same time?

The PRESIDENT.—I must relieve Dr. Tytler from the onus of accounting for any of the phenomena of the cholera in this country, because he distinctly said last evening, that he could not pretend to account for the events of a disease which he had not yet seen.

Dr. TYTLER.—As to the late gale producing the good effects ascribed to it, that is a mere assumption. I say it was *not* the gale. I went into the grocers' shops within these few days, and inquired the state of the rice sale, and I was told that nobody was eating it at this season of the year, but that it would probably come into use again about Christmas. Why, at Bancoorah the magistrate pursued an opposite course to that of Dr. Johnson, for in that place the magistrate actually ascribed the *production* of the cholera to a

gale which occurred at that time, while Dr. Johnson claims for a gale the merit of having destroyed the disease. What can I say more?

Mr. DENDY.—I rise to object to some of the positions of Dr. Tytler as to the production of cholera in England by rice;—

The PRESIDENT.—I must again interfere.

Mr. DENDY.—Well, then, I content myself with saying, that I consider his documents to be of no *utility*, because they do not show us how to treat the disease in this country. I contend also, that there is not an identity between the Asiatic disease and the disease here, on the ground that an almost undeviating symptom here is strangury, while in India Dr. Tytler says that was not a symptom of the disease. I consider, too, that Dr. Tytler's communication is defective on this point, that it lays down too decisive a rule as to the cause of the disease. He will have nothing to do with any other cause than rice. Now I have had cases not only in which no rice had previously been taken, but in which I actually gave rice, and yet the patients recovered. Besides, *any* diseased grain will produce morbid effects. He mentioned last evening the cases of a merchant and a count, who could not eat rice without experiencing dropsy. Now I consider that the circumstance was merely an instance of that kind of antipathy which is common to some people on eating particular food. I know a lady who cannot swallow five strawberries without experiencing urticaria. Then as to the cessation of the disease by stopping the consumption of rice, why a mere change of wind will often check it. I attended a family in Knight's-court in which were two cases of cholera so far gone that I had not the slightest idea of their living through the night; but the wind changed before morning, and next day one of the patients sat up and laughed at me in the bed. I am sure, in fact, that the deleterious cause is in the atmosphere. Allow me to quote the cases at Clapham, where the opening of a cess-pool produced symptoms in persons exposed to the malaria, which Dr. Latham has since said were precisely such as he afterwards saw in cholera patients. It was malaria *then* and it is malaria *now*, ingesta of various kinds being the exciting causes. Let me also refer to the observation of Dr. Prout relative to the extraordinary density of the air just before the irruption of the cholera here, and also to the circumstances noticed at Pott's vinegar manufactory, where just at the time that the disease appeared in London there was such a peculiar change in the air that the fermenting process was impeded, and the whole of the vinegar then making was obliged to be thrown away. I admire Dr. Tytler's science and his great perseverance, but I wish he had had better facts to ground his views on. We might as well say that because green-gages in some cases produced the cholera, the disease should be called "prunus choleriferus," as that it should be called "morbus oryzeus" in consequence of anything observed by Dr. Tytler; or that it should be termed "morbus testudinis," because some alderman happened to have the cholera after going to a city feast.

Dr. TYTLER.—I wish that that gentleman had done me the honour of sticking to my facts instead of quoting so many of his own. I have nothing to do, as the President has said, with the ditch at Clapham, nor with the belly-aches of little boys who eat green plums. I only know, that in a district where ten thousand people died of the cholera, every man in the jail of that district, who refrained from eating rice, escaped having the disease.

Mr. DENDY.—Does Dr. Tytler believe that the disease in this country is the disease of Asia?

Dr. TYTLER.—I cannot tell. I have heard of a disease produced from vinegar-vats, green-gages, and tortoises. That is not the disease I saw in India. The only object I have in laying these facts before the Society is, to prove to you what has been the cause of the disease *in India*. I have studied the cause nowhere else, and therefore cannot pretend to speak of it. I do not want to trace the cholera everywhere to rice. I only say, that rice has produced it in the East. But then, mind, I show you that the very poison which has produced it there—bad rice—is at this moment selling in London as food at three-half pence a pound. Who can resist the inference! I warn people of eating that food; and will any man in this society rise after what he has heard, and after examining the trash I have laid on the table, and say that such stuff as those examples exhibit is fit for human food? If so, let him proclaim it. If not, let him join me in my endeavour to banish this poison from the markets of England. *(Applause from all parts of the room.)*

Mr. PROCTOR.—To my mind there is reason to believe that Dr. Tytler has fully proved his position. A great deal of interest, however, is taken from the facts in consequence of Dr. Tytler's inability to say that the Asiatic and the English diseases are similar.

Dr. TYTLER.—I will give you my opinion then, Sir, that they are the same disease.

Mr. PROCTOR here made some remarks relative to the safety with which rice-water

was given by him to cholera patients to drink.

Mr. CLIFTON.—I rise to say how much I think the Society is indebted to Dr. Tytler for the luminous exhibition of facts he has made to us. He has opened a new light in this country. We have had many discussions here and elsewhere on the subject of the cholera, but no hint has ever before been dropped with respect to its production by rice, nor has any intimation ever been made that such views as those of Dr. Tytler had at any time been entertained or promulgated by him. We are, therefore, hardly able at present to form a judgment on the subject. His facts relative to the jails at Jessore and Allahabad, and the sepoys, are so strong, that if we are to believe what he says at all, there can be no doubt as to the cause of the cholera in India. I am myself disposed to say, from past impressions, that any deleterious food will produce the disease, under certain circumstances, but I repeat that I think we are deeply indebted to the author of the statements for the proofs he has afforded us of one most extensive cause of the disease. How important would it be could we cut off such a source of death, for I challenge the whole medical profession to name any remedy which will act as a certain cure for the disease. With regard to the rice, we ought to bear in mind that Dr. Tytler ascribes injurious effects only to *bad* rice, (*hear, hear,*) and Mr. Proctor should bear in mind that the rice-water given in cases here was probably made from the best rice.

Dr. TYTLER.—Certainly. I allude merely to the diseased grain.

Dr. WHITING.—Nothing should stand in the way of a full prosecution of this inquiry. It is a most important one, and must be thoroughly probed. (*Hear, hear.*)

The usual hour of adjournment having passed, the request was made to Dr. T. that he would again meet the Society on Monday next, at eight o'clock. The wish was instantly acceded to, and the assembly departed.

*Letter from Capt. Bowie, referred to in the Speech of Dr. Tytler, page* 113.

"Batavia, Oct. 11, 1823.

"To Dr. Tytler.

"Sir,—Your letters in the Bengal papers some time ago attracted much notice, but I am well convinced not so much attention was paid them as they really deserved. What you mention of rice of a twelvemonth's growth back being prejudicial to health, if used as food, is beyond all doubt correct, as I and all my crew, 39 in number, have experienced; and I am further, beyond all doubt, convinced that it is still more pernicious when enclosed in a store, or ship's hold, where there is no circulation of air.

"On the 11th of July 1823 I landed at Passerwan, island of Java, a cargo of about 200 tons of rice that had been confined in a store belonging to the government for a space of about eighteen months. When taken on board it had all the appearance of good rice, and was sold as such, but its pernicious qualities were soon evinced.

"As soon as the vessel was loaded I repaired on board, and was immediately attacked, owing to my using this rice, with the disease called cholera morbus. My chief officer, Mr. Burn, and all my crew, were attacked a few days previous, and only saved their lives by remaining on deck. After the crew recovered, when sent below on ship's duty, if for the space of an hour, they had an immediate attack, and with much difficulty, through medicine, were restored.

"When at Blivous, island of Banka, a gentleman visited me, and after looking through the vessel below, although I informed him of the effects that were liable to ensue, and after eating of the rice, he went on shore complaining of an attack of cholera, and *died the next day*. He was the son of General VAN GHEEN, the commander of the cavalry at Batavia.

"I therefore, in support of your opinions, as I have read them in the Calcutta papers, do declare that I am positively convinced of the truth of what you have urged, although people have differed in opinion from you. I am, Sir,

"Your most obedient servant,

"J. BOWIE,

"Commander of the brig *Elizabeth*."

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Since writing out the above report, the gentleman who has been occupied on the task has had the following facts communicated to him, and evidence of their truth can, he believes, be furnished from competent sources. Fourteen or fifteen years since, a disease prevailed, almost universally, amongst the boys of the *London Orphan Asylum*, then situated in Hackney-road, the chief symptom of which was diarrhœa. The medical men who attended the institution were consulted, but no cause for the disorder could be discovered, and very great difficulty was experienced in its treatment. A principal article of food in the diet of the boys was rice of a very inferior quality, and at last, at the suggestion of the master of the school, the

use of a very large share of the rice was discontinued in the meals, when the diarrhœa was checked, and the boys speedily recovered their health.

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Poor Roderick Macleod, unmindful of the fable of the Spaniel and the Ass, has essayed to be *witty*. But the miserable dolt has made a sad mess of it. As we cannot hope to strengthen his judgment, we are, nevertheless, as good Christians, anxious to improve his morality; wherefore we write for his benefit the following words of Casaubon:—"Every vice has its beginning in a lie." If Roderick have not sense to comprehend an argument, surely his vision is sufficiently clear to enable him to make correct quotations. Verily, lying is an odious practice. As Roderick is the physician of that quack concern, the "Asylum of Health" in the New Road, he looks forward with painful apprehension to the complete blow-up of the system which he has endeavoured to support by his puny efforts. Stupidly ignorant as is this hireling scribe, this dub clerk of Longman and Co., we could have thought that he might have understood the difference between the impossibility of rendering the Dispensary election System worse, and a meritorious attempt, on the part of the medical officers of a Dispensary to render the system somewhat better for the profession. As Roderick has been directed to attack Mr. Skey (his dirty hand is ever ready to fling at the oppressed), he will next week be ordered by his masters to write (without reasoning, of course) in support of Caswall and Wyatt. It is really a pity that an amiable and deserving man should be in such low service.

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We have room this week only to acknowledge the receipt of communications from Mr. Alto.—Dr. Montgomery.—Dr. Price.—Mr. Cox.—Mr. H. Thompson.—Mr. Bree.—Mr. J. Brown.—An Observer.—Medicus.—A Subscriber.—Judex.—Mr. Hunt.—Mr. Hiley.—A Gov. of St. Barth.'s Hosp.—Mr. Langford.—A Chelsea Rate-Payer.—Dr. Hughes.—Mr. Batten.—Dr. Cumming.—Mr. Sherriffs.—Paul Pry.—W. C.—Mr. Allcock.—J. C.—Dr. Clanny.—An Old Mem. of Mr. Stanley's Class.—A Gov. of the London Hosp.—A. B.—Mr. Hooper.—An Old Gov. of the Ald. St. Disp.—Edina.—S. T. P.—J. B.—Mr. Newington.—F. L. C. M.—M. D.—Mr. W. Tinker.—E. M.—Anti-Censor.—Mr. Lambert.—Mr. Radcliffe.—Mr. Bryant.—Mr. Mac Intosh.—*A late Pupil of Guy's* 2nd Letter shall appear.—Dr. L. shall have a note to-day.—*An Old Subscriber* should procure the work of Mr. Thos. Bell, of Guy's Hospital.—*R.* ought to be whipped.

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Errata.—In leaders last week, page 72, col. 2, line 40, before *school*, add *private*.—Page 76, line 16, for *couraging*, read *carrying*.

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## THE LANCET FOR 1833-34.

Having made arrangements for the publication of the entire Course of Lectures now delivering at the University of London by

PROFESSOR GRANT,

ON

COMPARATIVE ANATOMY AND ANIMAL PHYSIOLOGY,

the first of the series is published this week, and the whole Course, consisting of about Sixty Lectures, will be printed in the two volumes for this year. The Lectures are taken in short-hand by a gentleman employed expressly for that duty. They will, when necessary to an elucidation of the subject, be illustrated by engravings on wood, and we have the satisfaction of adding, that Professor Grant has kindly consented to correct the proof-sheets.

A more splendid contribution than this Course of Lectures it is not in our power to offer to the English medical public.

In addition to the Lectures of Professor Grant, those of Sir Charles Bell, Mr. Wardrop, Baron Dupuytren, with many Clinical Lectures, will be given in this volume.